OHIO STATE UNIVERSITY
JUL 27 1931
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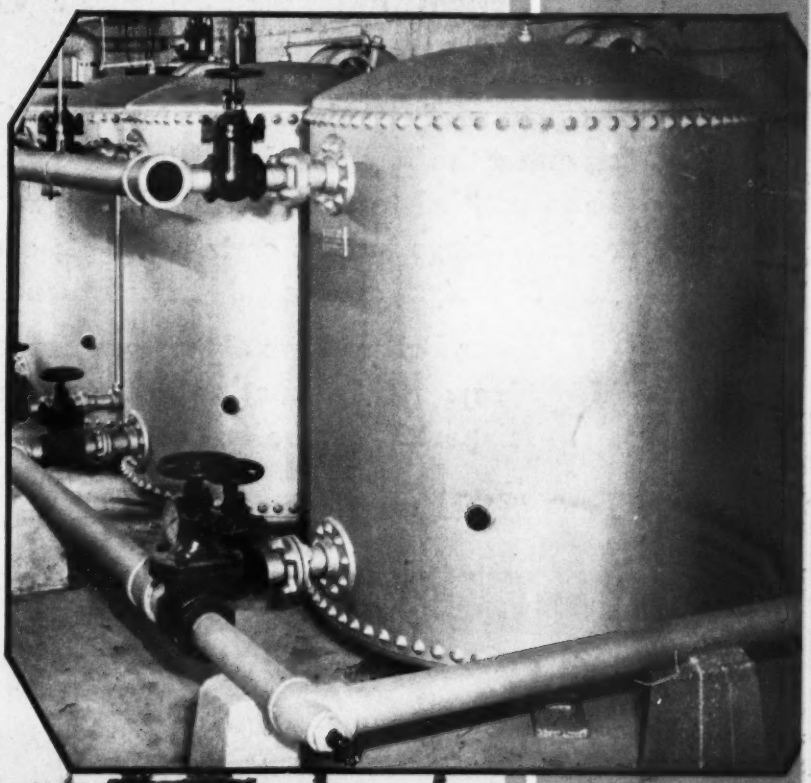
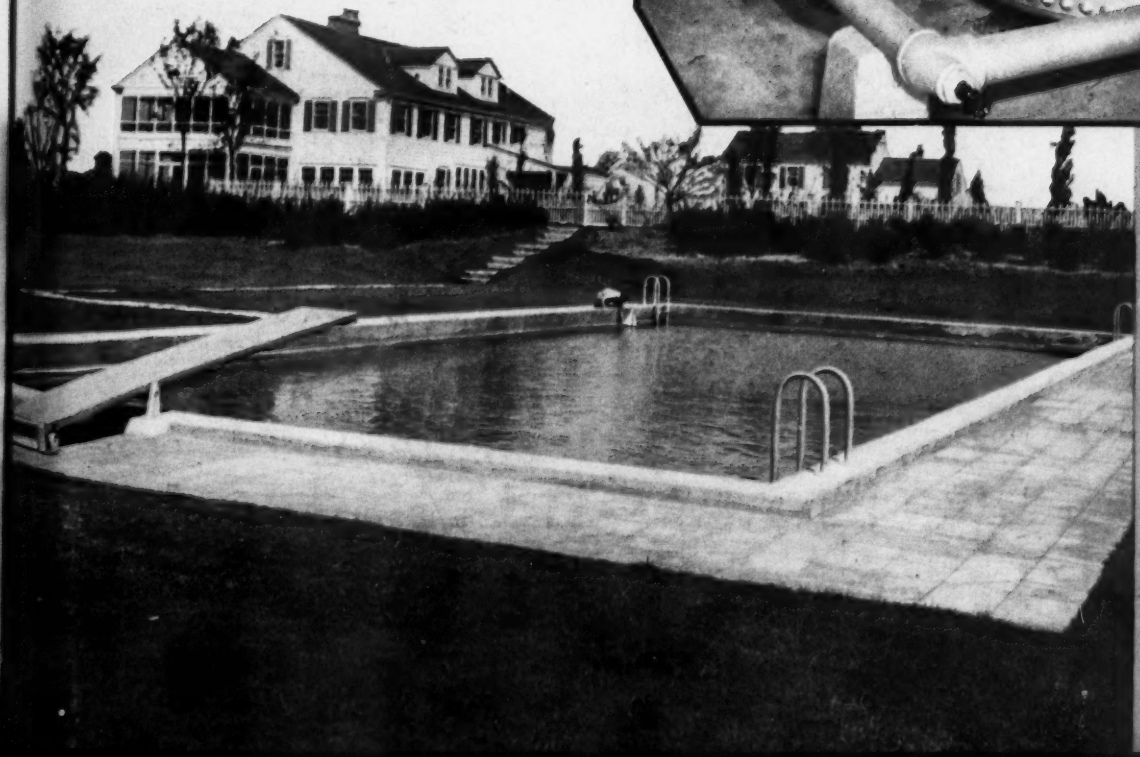
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

The owner expected just a tank full of water . . . But the plumbing contractor designed —

An Ideal Swimming Pool





JULY 25, 1931

KEWANEE STEEL BOILERS

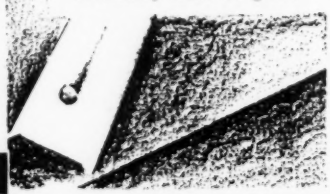
A Kewanee is never "stunted." It is always "full grown" and "well muscled." Correct in size, weight and in proportion.

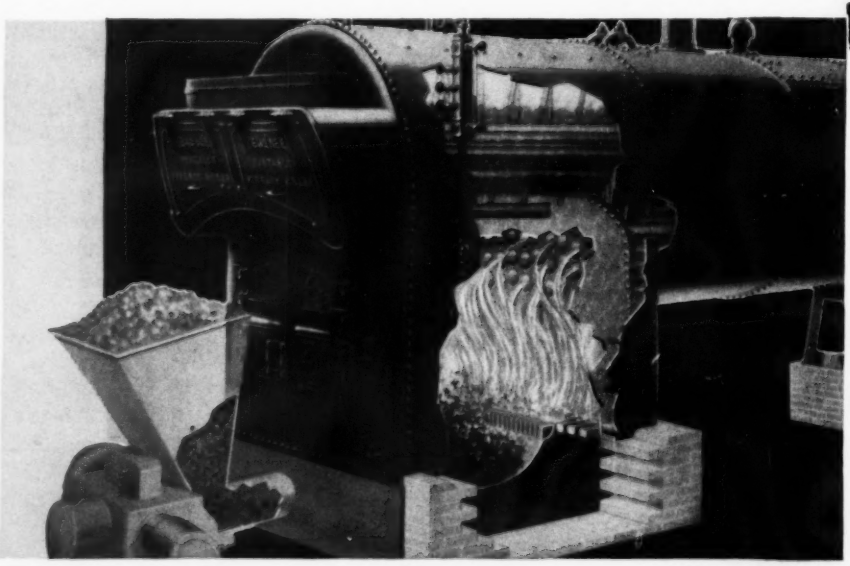
65 years of experience have taught us that to give an owner the long period of satisfactory service which he is entitled to demand in a boiler, we must put certain things into it; certain weight; certain sureness of design; certain skill in workmanship.

Kewanee Boilers have always been built that way. *They always will be.* That's why they steadily maintain their position as the best boiler values obtainable.

Steel plus Rivets equals Strength

Miniature Golf may be all right. At least it's a lot of fun for small money. But a miniature boiler sold to carry a full size heating load invariably leads to grief.





For Big Buildings or Small Buildings—for Coal (hand or stoker fired), Oil or Gas.

Kewanee builds 11 types and 160 sizes to heat from 450 to 47,700 square feet of equivalent direct radiation—with typical Stoker Attachment shown.

KEWANEE BOILER CORPORATION

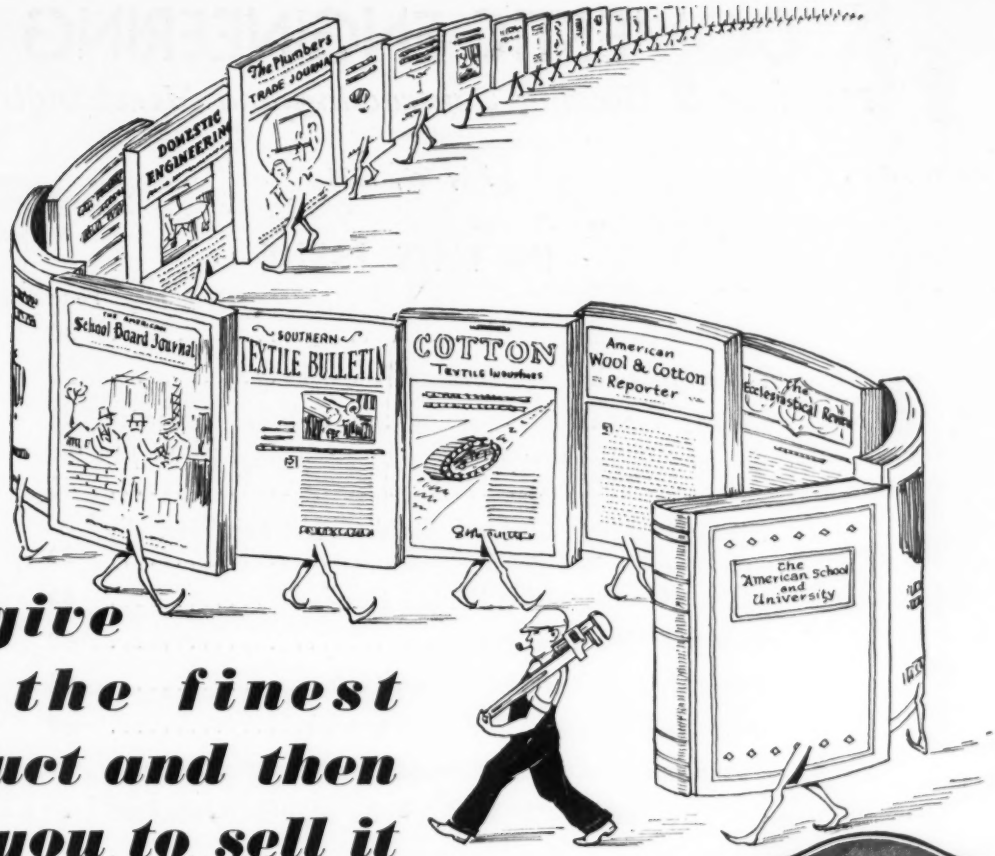
division of American Radiator & Standard Sanitary Corporation

KEWANEE, ILLINOIS

MEMBER OF STEEL HEATING BOILER INSTITUTE

Branches in Principal Cities

Experience Proves—It Costs Less to OWN a KEWANEE



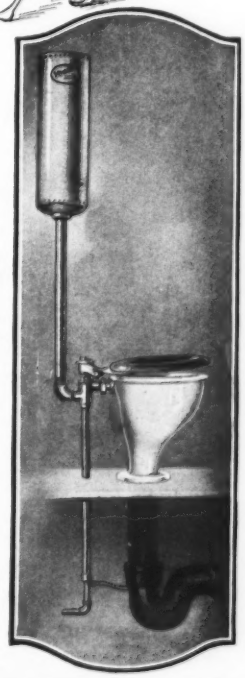
We give you the finest product and then help you to sell it

YEAR in and year out we constantly back up the plumber with publication and direct-mail advertising.

We know VOGEL Frost-Proofs are the best, and we are telling your customers so. Now, when they think of frost-proof closets, they think of Vogels.

This kind of advertising makes it easy for you to sell VOGEL Products. And remember, if you need anything in the way of folders and blotters, imprinted with your name and address, just let us know, and we'll be glad to send them along.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware St. Louis, Missouri



Vogel Number One Frost-Proof Closet. Sturdy in construction ..... simple in operation

See inside back page for VOGEL advertisement on No. 10 and 10-A Closet Combinations

VOGEL PATENTED *Frost-Proof* PRODUCTS

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 136, No. 2 | July 25, 1931 | Whole No. 1948

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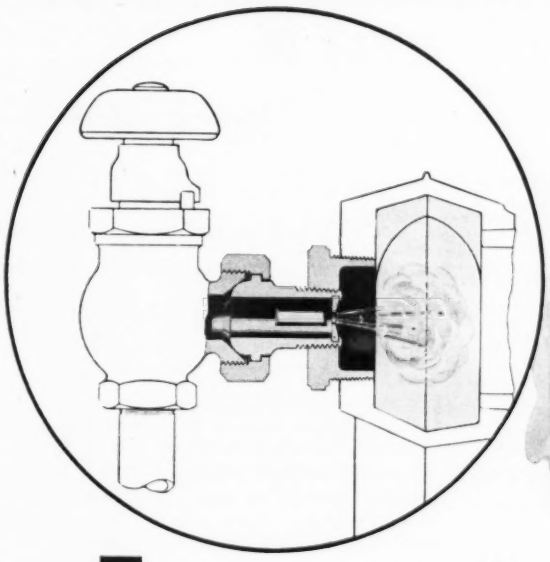
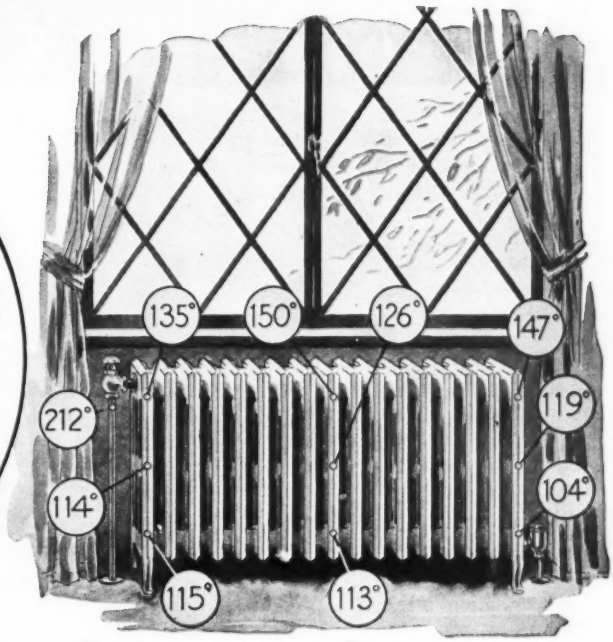
Member of Audit Bureau of Circulations.





Exceptionally low radiator temperatures ◆ *Even with gravity operation*

Outside temperatures of 50 or above are the signal for a window-opening contest in houses and buildings where uncontrollable heating systems crowd the radiators with unwanted steam . . . Expensive, uncomfortable and *unnecessary.*

Webster Centralized Control, plus metering orifices is the answer

Improved Webster Systems, with appropriate controls, provide a close approach in heating effect, under fractional loads, to that obtained with hot water heating—and without resort to high vacuum.

During mild weather heat delivery may be reduced automatically or manually to the amount required by the prevailing outdoor temperature plus a slight excess sufficient to compensate for minor variations in exposure, occupancy, etc.

Improvement in Control and Operation

In addition to improvement in heating service at the radiator, the Improved Webster Systems make possible the successful application of a single, central, *gradual acting* control—control that is *truly gradual* and which provides for heat delivery conforming precisely to changes in demand.

If you are planning to build or improve, look into all the advantages of Webster Improved Type "R" and Vacuum Systems. The coupon below will bring complete information.

The illustration above shows low radiator temperatures obtained under mild weather conditions with Improved Webster System using MODERATOR control under gravity operation at Integrity Building, Philadelphia, Pa.—pressure difference on system of 0.24 lbs. which is about 1/10 of that for 100% heating. Heating effect is, therefore, 1/3 of the maximum.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada

a R 30

-since 1888
Webster
Systems of Steam Heating

D.E. 7-25-31

WARREN WEBSTER & COMPANY, Camden, New Jersey:

Please send me your Bulletin describing the Webster IMPROVED Systems and information on modernizing older heating systems.

Name..... *Address*..... City.....

Between Ourselves

ON the front cover of this issue is a view of a swimming pool, and of the tanks used in softening the water. This pool, by the way, was designed completely by a plumbing contractor, who had to show the owner the necessity for everything that added to the pool's attractiveness. **Your Editor**

THE owner of the swimming pool described in this issue as "The Ideal Swimming Pool," when he first thought of having it constructed, had an idea that he would get a concrete wall and floor, with an inlet and an outlet for the water. But the plumbing contractor on the job had ideas of his own—and when he had sketched his plan for a safe and beautiful pool, the owner was ready to agree that it was something a great deal more striking than he had thought it might be. Underwater lights, a purifying plant, water softeners, a bath house, toilet facilities,—these and other elements in the installation make it a private pool the equal of any public pool in safety and beauty—even, perhaps, more than the equal. Because it was the realization of an ideal.

AND now we have two "pet" departments in the paper that simply must be mentioned. The newest is, of course, AUTOMATIC HEAT, that twenty-page section covering oil burners, stokers, gas boilers and burners, and all the things that go to make up modern automatic heating. This "publication within a publication" in this issue contains a well-balanced diet of technical and selling information. This new department has had a wonderful reception from the trade—showing that once again DOMESTIC ENGINEERING has anticipated a pressing need.

THE other department is, of course, "Plumbing and Heating Merchandising." Some months back we commenced a review of the material that has been published in this section of the paper during the four years of its existence. At Milwaukee one contractor said: "Those review sections are the best things I've ever seen." That's because, in them, there is a concentration of information on merchandising. In this issue, you'll find some plans for launching the new store—making of this occasion a valuable merchandising opportunity to the end that new friends may be made—as well as some sales.

"I HAVE read with keen interest the articles of Earl Belmont and I feel that he and other men of your staff with their knowledge of the subject will be able to solve my problem."—W. A. Callejo, Bronx, N. Y.

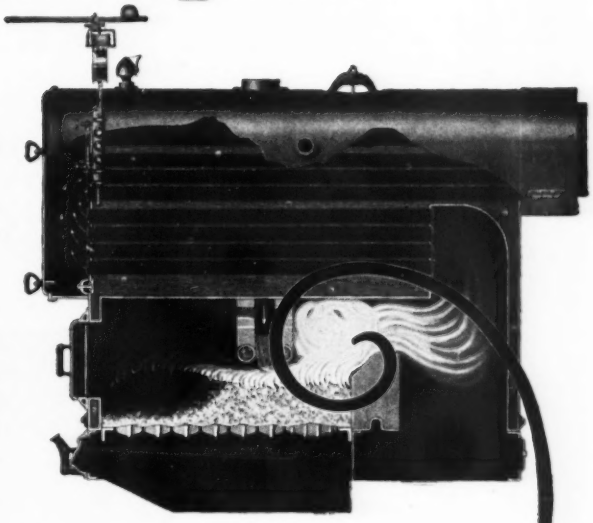
IT goes on all the time—conversation between men in the industry about its technical problems. And the article "Where Shall the Relief Vent Be Placed?" is made up of just such material. "I've got a tough problem," says one contractor, and proceeds to outline it. Probably he has the solution already—but he's drawing his fellow contractor out. And away they go. The problem discussed in this article arose out of an article in the May 16 issue of DOMESTIC ENGINEERING. That was one side of the conversation. The other was the comment received, which Mr. Starbuck discusses in his customary interesting and authoritative fashion.

WE now have two remodeling posters—one saying "The Difference Between an Old House and a New One Is Plumbing"—and the other one: "Modern Heating Makes Modern Homes." About the first one, A. J. Coburn, of Beaumont, Tex., says it is the best slogan that has been promoted for the plumbing business in years. We think the heating poster rates the same comment—and many thousands of both posters are already at work.

RESEARCH is bringing air conditioning within reach of the individual home owner. In our next issue there will be an article on this subject which reads like a fairy tale. But three houses are being air conditioned this summer, through the use of gas; and when the summer is over, there will be available a fund of experience upon which to draw. If the plans of the gas people mature, there will be no longer any need to swelter in the home during warm weather—for the home will be as comfortable as a super-movie palace.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

No Smoke Passes This Whirlpool!

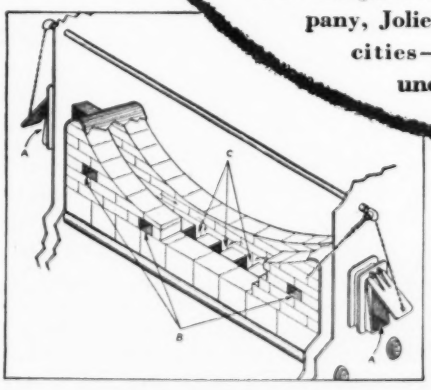


Like dry tinder—the soot laden gases of soft coal ignite the instant they strike this turbulent whirling mass of incandescent flame!

They burn and their usable heat units are utilized—because in this new Heggie-Simplex Smokeless Boiler there is always the right amount of oxygen to effect complete combustion. The additional oxygen necessary to burn bituminous coal smokelessly, but which can not be drawn through the fuel bed alone, is introduced through a special "carbureting chamber" over the fire.

Built of refractories, this chamber not only introduces the necessary additional oxygen but thoroughly heats it before passing it down onto the fire. A refractory bridge wall to the rear of this chamber baffles the fire, creating a whirlpool of flame which consumes all of the smoke and combustibles.

For complete facts, write Heggie-Simplex Boiler Company, Joliet, Ill.; representatives in principal cities—telephone and address listed under "Heggie-Simplex Boilers."

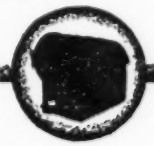


The "Carbureting Chamber" of the Heggie-Simplex Smokeless Boiler

Air is drawn in through intake doors (A) on both sides of the boiler. Volatiles arising from the fresh fuel are admitted through ports (B) in the forward wall. This inflammable mixture is thoroughly heated by the hot refractory walls of the chamber. It is ready for instant combustion when it passes through the jets (C) to mix with the gas stream flowing under the chamber.

Note there are no bothersome ceiling pulleys, long chains, etc. The operating device is "built in" the boiler.

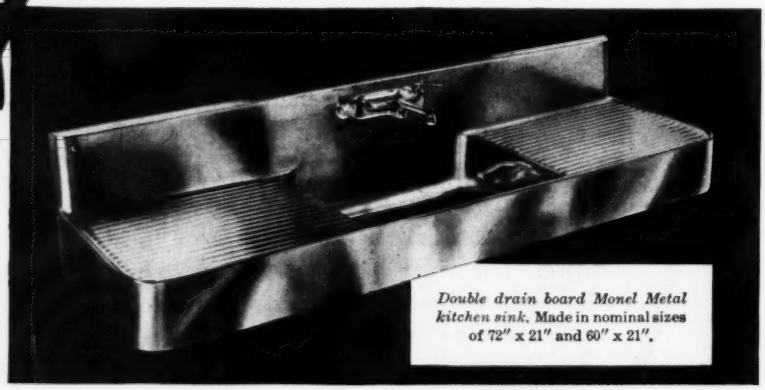
HEGGIE-SIMPLEX
STEEL HEATING BOILERS



Standardized . . .

MONEL METAL SINKS

. . . now offer everything your customers want

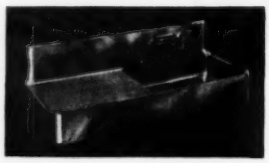


Double drain board Monel Metal kitchen sink. Made in nominal sizes of 72″ x 21″ and 60″ x 21″.

THE new standardized Monel Metal sinks offer you a wonderful opportunity to make customers of the most desirable families in your community. These modern sinks embody every advantage women have always wanted. They set brand new standards of beauty, convenience, durability, value. They open a new and highly profitable market to plumbing contractors who want to keep in step with modern merchandizing methods.

Your efforts to sell Monel Metal sinks are receiving the kind of advertising support that builds sales volume and bank balances. Compelling, colorful advertisements in national magazines are reaching eight million homes regularly as clockwork. Advertising to architects and builders in the leading architectural and building publications carries the message to professional groups. And booklets, folders, circulars and similar direct-by-mail advertising give your efforts added support.

Write today for further information about the big advertising campaign and Monel Metal Sink literature.



Single drain board Monel Metal kitchen sink. Available in both left- and right-hand drain board models. Made in nominal sizes of 50″ x 21″ and 41″ x 21″.

Monel Metal corner kitchen sink. Corner splasher at bowl end, drain board either right- or left-hand. Made in nominal sizes of 51″ x 21″ and 42″ x 21″.

Monel Metal Sinks Offer These Eight Points of Superiority

1. Rich, lustrous beauty . . . with a satiny, glass-smooth surface that is easy to clean and keep clean.
2. Neutral, silver tone that blends with any kitchen color scheme and eliminates troublesome color problems in stocking sinks.
3. Rust-proof . . . highly resistant to corrosion . . . strong as steel.
4. Solid metal clear through, with no coating to chip, crack or wear off. Less danger of damage during installation.
5. 10 standardized models and 6 sizes. One-piece construction of heavy gauge Monel Metal. No joints or seams. Reinforced and sound-deadened.
6. 31% more working space than an ordinary sink of same nominal size.
7. Less weight saves labor and expense . . . installing, stocking and handling.
8. Standardized construction and quantity production methods bring prices within reach of the average purse.

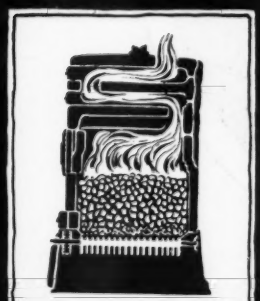
THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

A HIGH NICKEL ALLOY
MONEL METAL
MODERN AS TOMORROW

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

MONEL METAL

Burnham Boilers



The Burnham's long fire travel makes its short coal bill. And we can prove it. Want the proofs?

It's Weeding Time In Your Boiler Patch

IF you have hopes of a bumper crop of boiler business this Fall, it's time you were hoeing out those featureless boilers and putting in Burnhams.

You know that people buy boilers, as they do lettuce, cabbage or corn. For what they know of what's inside the leaves or husks of this kind or that variety.

Burnham long fire travel fuel thrift is as easy to show your prospects, as is the solid heart of a lettuce head, or the golden perfection of an ear of corn. Just swing back the doors and let 'em look in.

It pays to cultivate, when you have a crop like that on the way. You'll have something to sell besides black iron.

Send for full descriptions of Burnham Cast Iron and Steel Boilers, for every heating purpose.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all principal cities of the United States and Canada

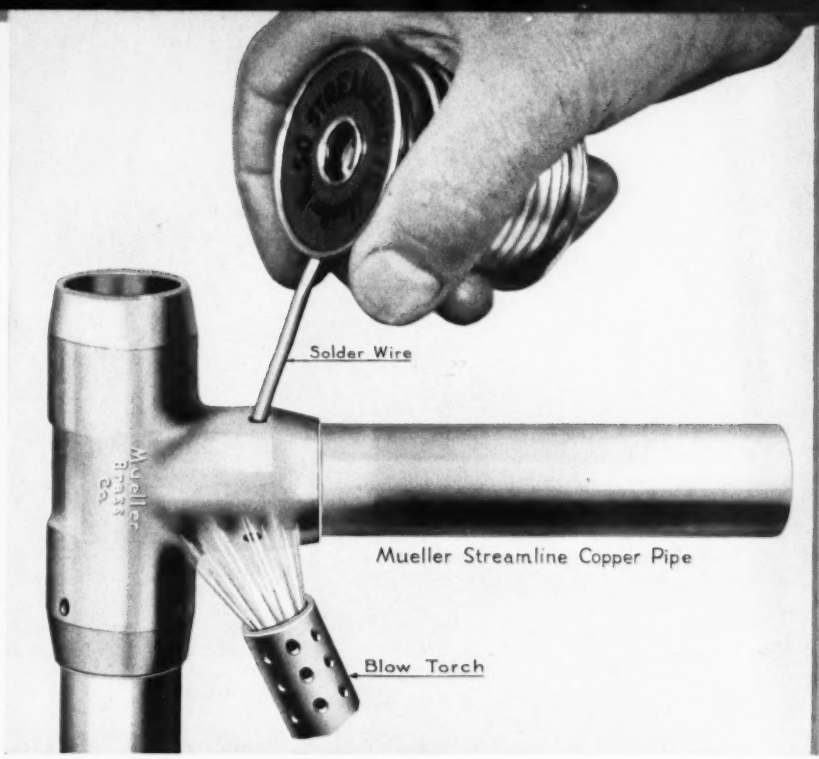
LOOK FOR THIS TRADE MARK MOULDERS SINCE 1897

DISTINGUISHED *by this "mark of quality"* STOKES *leads the world*

We are absolutely uncompromising in our determination to ship nothing but goods of the highest grade. These Float Balls undergo the most rigid inspection and tests before shipment is made. They will not crack or break under any ordinary conditions, *and may safely be guaranteed for the life of the tank.* They cannot rust or corrode. YOUR customers will thank you for suggesting that they use

STOKES HARD RUBBER FLOATS

HARD RUBBER IN EVERY CONCEIVABLE FORM — MOULDERS OF PLASTICS



Only A Hack-Saw, Sand Cloth and Blow-Torch Are Needed To Make This Patented Mueller Joint

These three tools, a can of Mueller STREAMLINE solder paste and a spool of STREAMLINE solder wire are all that are necessary for a Mueller installation. The expensive dies, wrenches and cutters, which used to be a part of every journeyman's kit, are no longer required.

Mueller STREAMLINE pipe and fittings for the ordinary residential remodeling job can be carried easily by one man.

Mueller has gone back to first principles and is again making it possible for the journeyman to be the craftsman of a soldered joint. Mueller has removed the backbreaking task of threading iron and steel pipe and has brought back the skill of the true artisan, yet the STREAMLINE product makes up into an installation fully worthy of the high traditions of the trade.

If you are not thoroughly familiar with this patented joint, consult your jobber or write for our catalog. Mueller STREAMLINE fittings are furnished in full range and in sizes of $\frac{1}{4}$" to 8" inclusive.

Canadian Office — Mueller Brass Co. of Canada, Limited, Toronto, Ontario

(111)

Mueller
BRASS CO. OF PORT HURON
MICHIGAN

"SHERWOOD brought *this* order in"

Yes, sir, I wondered just how much there was to this remodeling market. I wondered if the people owning old houses and apartments in my community would really buy new bath room equipment.

I took Sherwood Ball Cock advice and went out with a Sherwood under my arm. I asked several housewives if they were experiencing any trouble with leaky closet tanks and I sold two Sherwood Ball Cocks in my first four calls.

On the fifth call I suggested a new bowl and tank and seat. The owner agreed it would be a good idea. I began picturing a whole new bath room to him and to quote him prices. I showed him that "the difference between an old house and a new one is plumbing."

I made two more calls on that prospect and then got an order for a complete new bath room. I'll tell the world it's a good idea to let Sherwood Ball Cocks find the remodeling jobs for you. Try it yourself. Order a Sherwood from your jobber, take it out, sell it, show how it puts an end to noises, leaks, whistling and gurgling. Then sell a remodeling job!

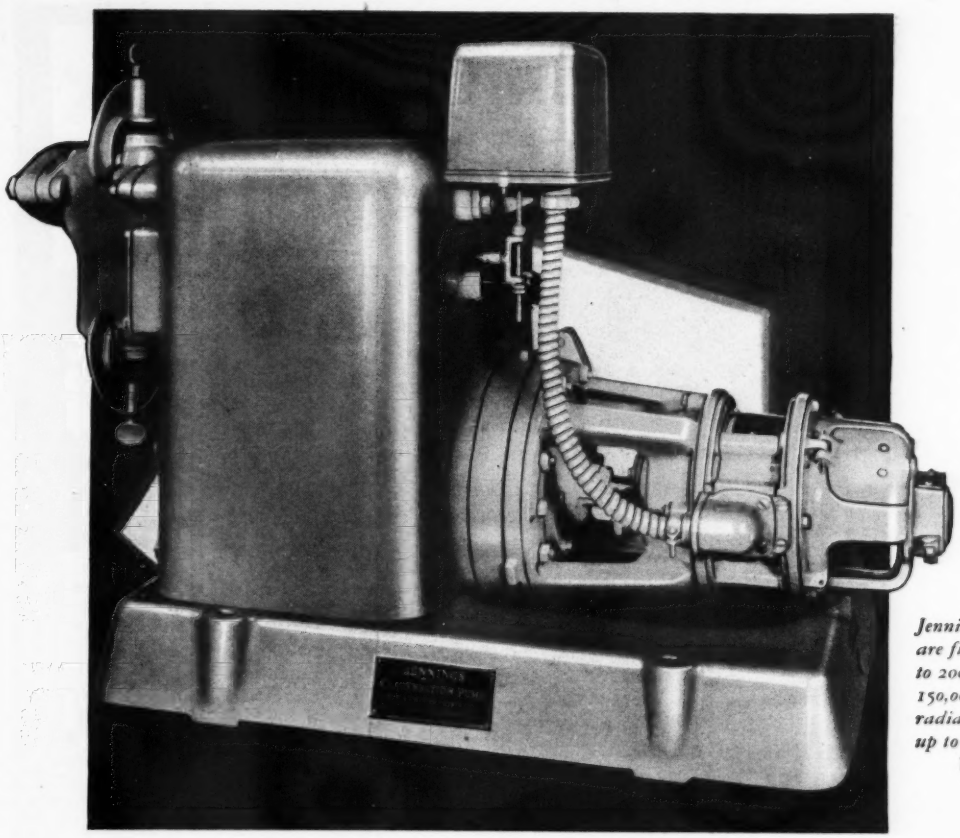
SHERWOOD BRASS WORKS

Jefferson and Mt. Elliott Aves. **Detroit, Michigan**

REPRESENTATIVES

J. A. Riordan Co., (Inc.), 1600 E. 7th St., Los Angeles—303 Colman Bldg., Seattle
E. S. Thompson, 2401 Chestnut St., Philadelphia Fred G. Hoffman, 831 Edgewood Ave., Trenton N. J
Fred S. Wilsey, Plymouth Bldg., Minneapolis Geo. W. Smith Co., 348 W. Penn Pl., Pittsburgh

SHERWOOD Ball Cocks



Jennings Condensation Pumps are furnished in capacities of 4 to 200 g. p. m., for serving up to 150,000 sq. ft. equivalent direct radiation. Discharge pressures up to 60 lbs.

Write for Bulletin 99.

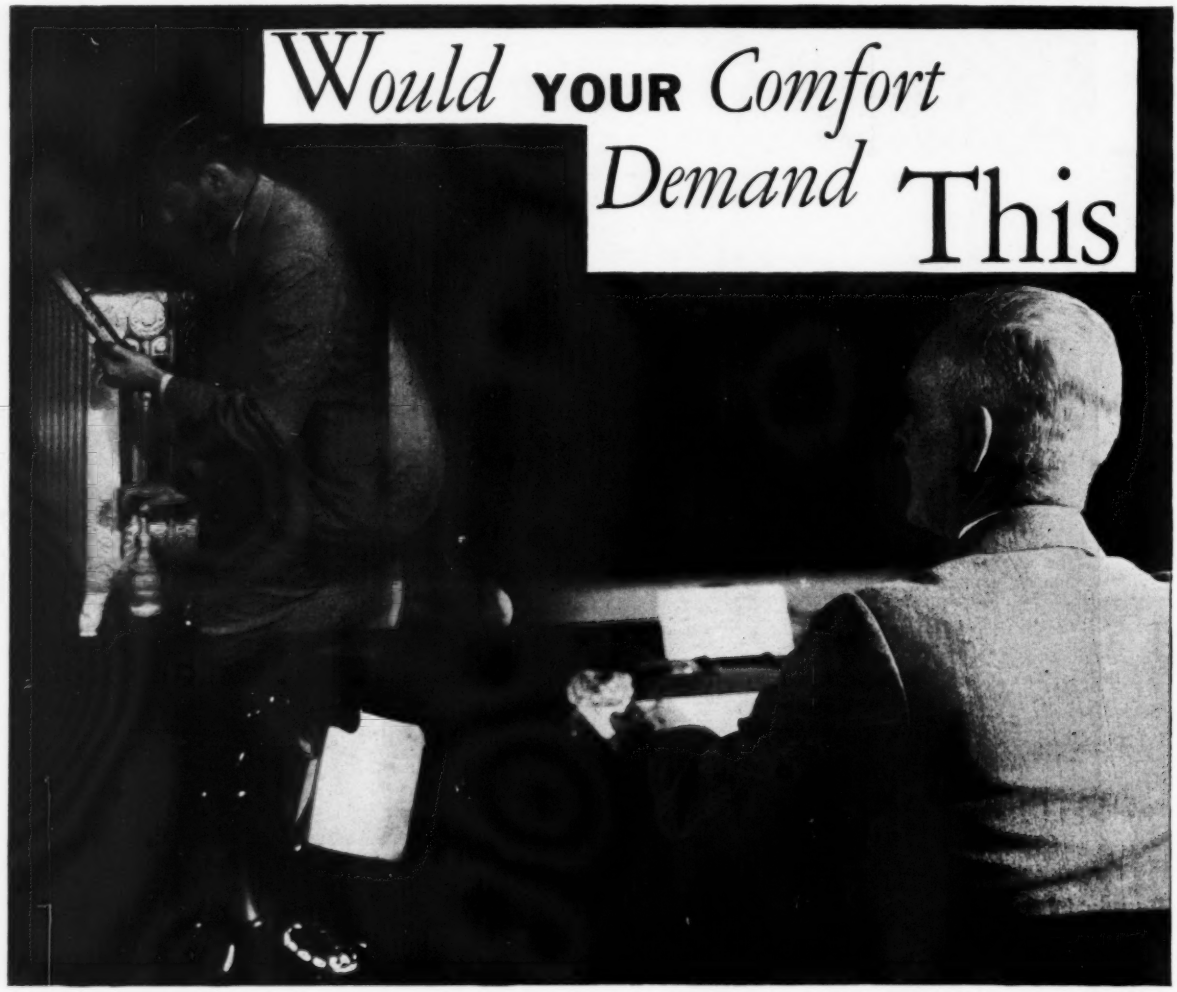
This condensation pump *saves putting the boiler in a pit*

PLACING the heating boiler in a pit to provide gravity flow of returns from basement radiators, makes a costly installation. By installing a Jennings Condensation Pump instead, an appreciable saving in first cost can be effected.

The Jennings Condensation Pump receives condensation from radiators set below boiler water level and returns it to the boiler or hot well. A sturdy, compact unit, this pump combines receiving tank, pump and driving motor in a single assembly. The pump impeller is mounted on a short extension of the motor shaft. No flexible coupling is employed. A rigid bracket supports the motor and provides permanent alignment of the shaft independent of the base. No detail of design has been overlooked which would assure long, economical operation.

NASH ENGINEERING COMPANY, 41 Wilson Rd., So. Norwalk, Conn.

Jennings Pumps

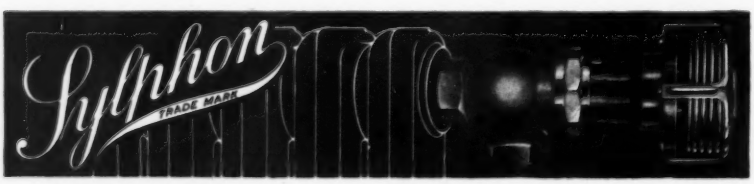


ADDED PROFITS FOR YOU

You probably would be more comfortable in your office, if you paid someone to keep an eye on the thermometer and a hand on the radiator valve. But, of course, you wouldn't do it. The New Sylphon Radiator Valve is the automatic hand, thermostatically controlled, which holds the temperature of your office to suit your individual idea of maximum comfort.

It is never too hot, never too cold with Sylphon. Your office will be as comfortable at 4:00 P.M. as it was at 10:00 A.M. If 65° is *your* temperature you can have it—or 69°, or 73°—whatever *you* require to be comfortable and work efficiently. By smoothing out the peaks and valleys of temperatures, Sylphon saves steam and reduces heating costs.

Try Sylphon—and be comfortable. Installation is easy and inexpensive. No mechanical accessories to get out of order. Owners and managers of factories, hotels, apartments, and office buildings, should know about this individual automatic radiator control.



automatic
RADIATOR VALVE

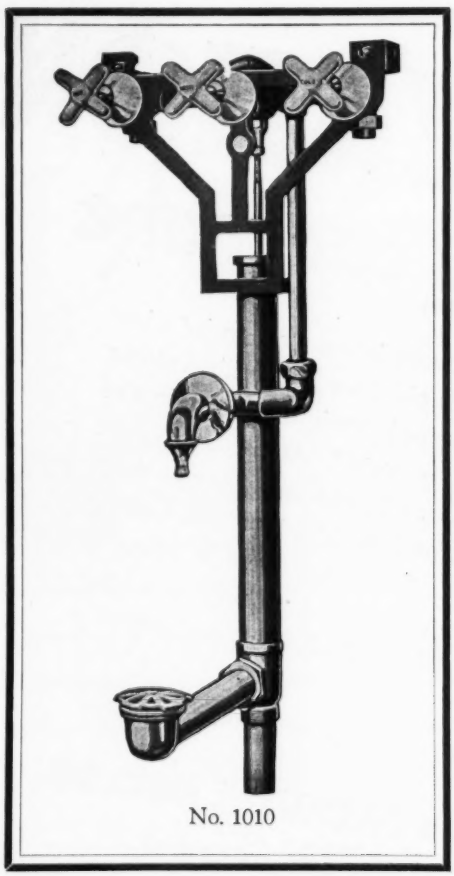
Sylphon Automatic Radiator Valves afford increased profits in their sale and installation. Right in your territory are office buildings, apartments, hotels and public buildings wherein the installation of these complete steam radiator control instruments can prove highly efficient.

No complicated mechanical accessories, nothing to get out of order or require adjustment and are easily installed. The Sylphon Automatic Radiator Valve is a combination packless valve and thermostatic control, and is actuated by the Sylphon Bellows. Suitable for any two-pipe steam heating system where the pressure does not exceed 10 pounds. Write for complete descriptive Bulletin No. ND 250.

FULTON SYLPHON CO.
KNOXVILLE, TENN., U.S.A.

European Representatives, Crosby Valve and Eng. Co., Ltd., 41-2 Foley St., London, W. 1., Eng.; Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Can.

REPRESENTATIVES IN ALL PRINCIPAL CITIES IN U. S. A.



No. 1010

"The

DIFFERENCE BETWEEN AN OLD HOUSE

◆◆ *and a* ◆◆

NEW ONE IS PLUMBING"

This

American

Built-in Bath Fixture is always a popular number *and here's why*

Home and apartment owners today more than ever before are demanding brass goods that are built for the future.

That's why the American 1010 Bath Fixture is so popular in remodeling work. It's why it's the unfailing choice of hundreds of contractors everywhere for every kind of work.

When you're making old homes new, use the American 1010. Use *all* American Brass Goods. Order from your jobber and ask him to show you the American Art line of fixtures for homes and apartments where modern smartness and beauty are demanded.

AMERICAN SANITARY MFG. COMPANY

ABINGDON, ILLINOIS

there are MODERNIZATION profits YOU can make

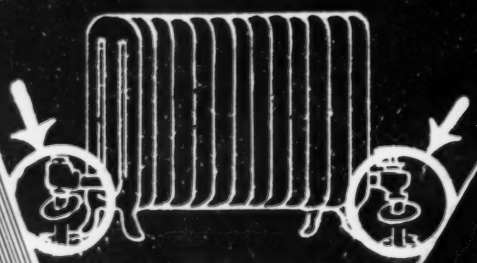
Eyesores! Almost every house you go into has several places where old floor and ceiling plates are not covering jagged, unsightly holes in the wall, or the plates are rusted. And there's profit in it! Profit because all your men have to do is to snap a Perfection No. 10 Floor and Ceiling Plate on the pipe. They are made in brass or steel, finished in chromium, nickel plate, aluminum or oak. Check EVERY place where a plate is used.

Use brass for permanency

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

CHECK THESE PLACES

RISERS



RADIATOR SUPPLY LINES

PERFECTION FLOOR & CEILING PLATES

"Systems..." SOME LIGHT ON A DARK SUBJECT

THERE is too glib an acceptance of the term "systems" today as applied to heating equipment. It must be realized that a *real* system cannot be casually assembled from unrelated parts . . . that a single unit of doubtful quality can destroy the efficiency of the whole . . . that uniform excellence of manufacture is just as important as proper unit-design and careful selection of materials.

Granted these qualities, there still remains the necessity of a producing organization with ample engineering ability to combine its units into an effectively co-ordinated whole; an organization sufficiently alert and progressive to maintain its products constantly in the van of modern requirements.

Lacking any one of these factors, the "system" is unworthy of its name.

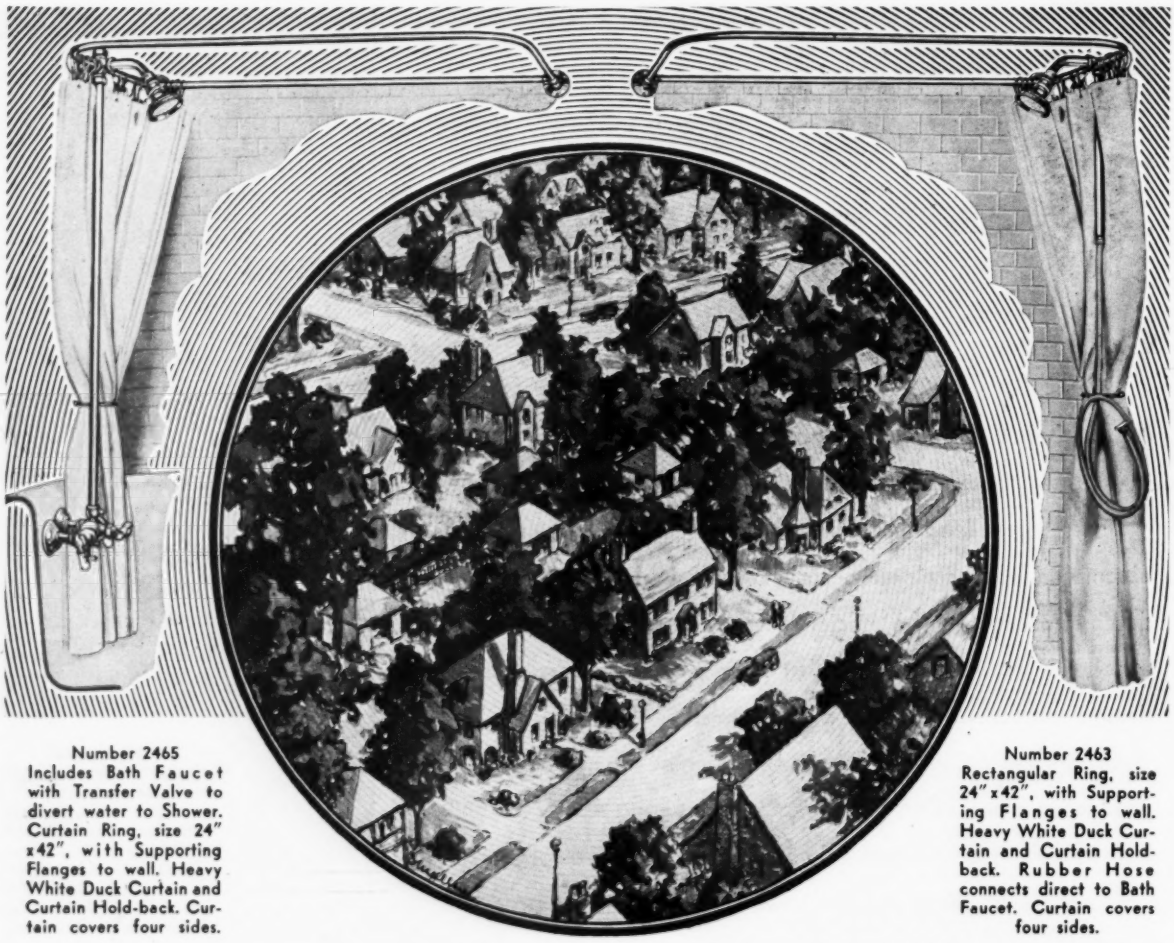
How completely the Marsh Weather Compensating System of Heating fulfils all these requirements is best demonstrated by the success it has won in installations where comparison of actual operating costs is possible.

JAS. P. MARSH & CO.

The Hallmark of Modern Efficiency

HOME OFFICE:
2079 Southport Avenue, CHICAGO, ILL.
551 Fifth Ave., New York City · Bendix Bldg., Los Angeles · 2539 Pennsylvania Ave. N. W., Washington, D. C.
Sales Offices in principal cities
In Canada: The Jas. Morrison Brass Mfg. Co., Ltd.
1190 University St., Montreal 93-97 Adelaide St. West, Toronto, 2 · 251 Montrose St., Winnipeg

Marsh Weather Compensating System of Heating



Number 2465
Includes Bath Faucet with Transfer Valve to divert water to Shower. Curtain Ring, size 24" x42", with Supporting Flanges to wall. Heavy White Duck Curtain and Curtain Hold-back. Curtain covers four sides.

Number 2463
Rectangular Ring, size 24"x42", with Supporting Flanges to wall. Heavy White Duck Curtain and Curtain Hold-back. Rubber Hose connects direct to Bath Faucet. Curtain covers four sides.

EVERY HOME IN YOUR COMMUNITY SHOULD BE EQUIPPED WITH A SHOWER

The increased activity in outdoor sports by American people of all ages has made them appreciate more than ever before the exhilaration of a shower . . . Many homes are without one . . . because the home owners believe that only by an expensive installation could they enjoy a shower . . . Many homes without a shower are rented . . . These are the people to whom the Wolverine Portable Shower is indeed a boon . . . Tell them about this real shower . . . Every home in your community without a shower is an immediate prospect for a "WB" DEPENDABLE PORTABLE SHOWER.

WOLVERINE BRASS WORKS
GRAND RAPIDS . . . . . MICHIGAN
We Sell the Retail Plumbing Trade

WOLVERINE

P R PIPE...

(PAUL REVERE PIPE)

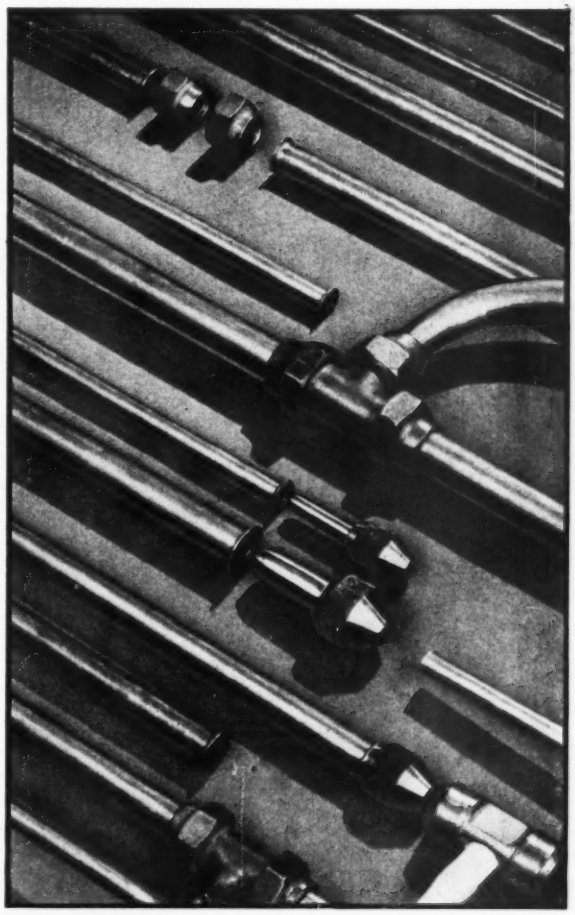
However you look at it, stands to your credit!

WHEN you, as a plumbing contractor, combine P R Pipe with good workmanship on your installations... the completed jobs are always a credit to you. This is true whether your customer is judging a job for its neat finished appearance or for its service and permanence.

Take appearance. P R Pipe (No. 2 Hard Temper) comes in straight lengths up to 20 feet. Your runs are true and straight. No sags. The minimum number of straps and hangers are required. You can make smooth, wide bends and eliminate many fittings. The necessary joints are neat, workmanlike, because you use compression fittings. In the basement, on exposed runs, in new construction, where appearance is important... P R Pipe (No. 2 Hard Temper) justifies your pride in your jobs.

Or, take service and permanence. P R Pipe, being 99.9% copper, will not rust nor clog. It will not stain water nor reduce its free flow. Being ductile, P R Pipe will stand accidental freezing without bursting. Repairs are never required, as P R Pipe will outlive many lifetimes. P R Pipe meets every requirement for service and permanence. What's more, the first cost of P R Pipe is the last... and that's real economy.

P R Pipe is also available in No. 1 Soft Temper for services between main and meter and for replacement jobs. Important here, is the fact that P R Pipe can be fished through walls and readily bent according to the needs of the installation. Thus repair jobs can often be turned into replacement jobs since it is possible in most cases for the plumbing contractor to finish up all necessary work.



Use P R Pipe to make your jobs a credit to you... and that, after all, is the best way to build a permanent, profitable business.

For further information address Revere Copper and Brass Incorporated, 230 Park Avenue, New York City.

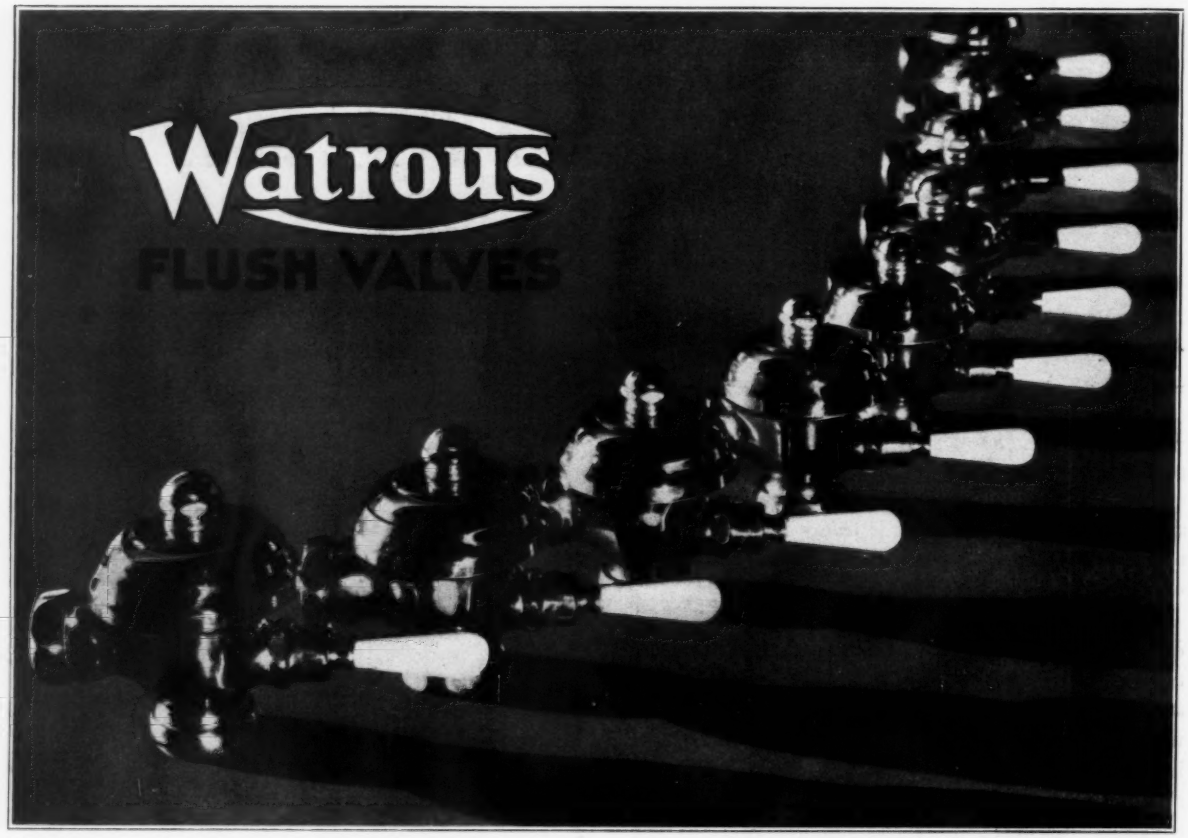
Revere Copper *and* Brass

INCORPORATED

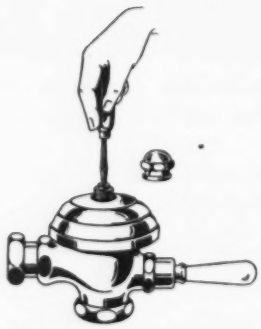
P R PIPE

Baltimore *Division, Baltimore, Md.* Michigan *Division, Detroit, Mich.* Higgins *Division, Detroit, Mich.*
Dallas *Division, Chicago, Ill.* Taunton-New Bedford *Division, Taunton, Mass.* Rome *Division, Rome, N. Y.*

EXECUTIVE OFFICES: NEW YORK CITY
GENERAL OFFICES: ROME, N. Y.



A Real Line f Sanitation



Adjustment of water-flow can be made in less than one minute's time by merely removing the cap and turning the regulating valve either to the right or to the left.

IN hotels, public buildings, hospitals and the home Watrous stands steadfast as a first line of defense of perfect sanitation.

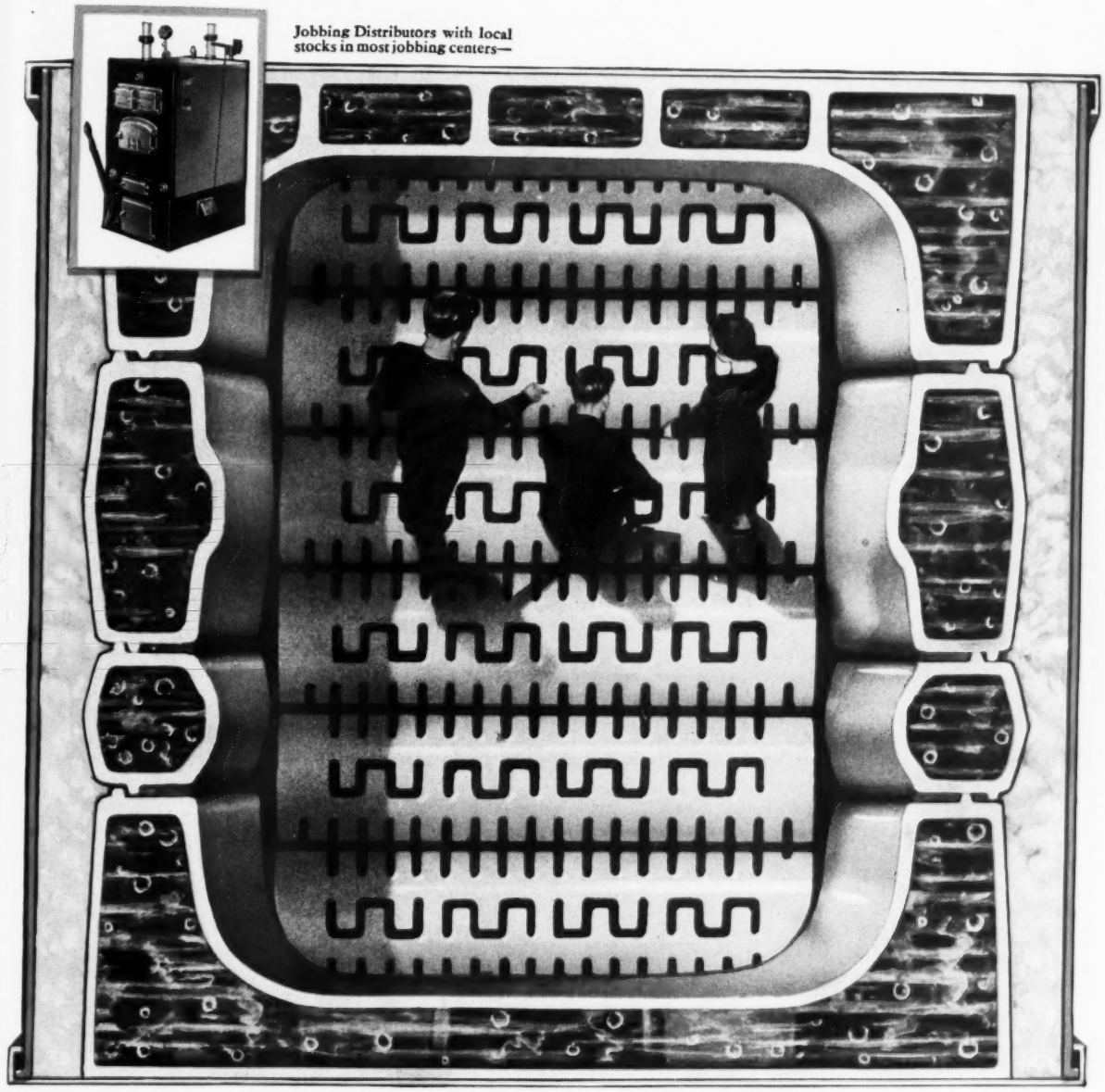
Travel, if you will, to the North, to the South, the East or the West—no matter where you go you will find Watrous Flush Valves giving that high degree of customer satisfaction so peculiar to all of Watrous products.

Plumbers who want to avoid "come backs" insist upon using Watrous Flush Valves because perfect flushing and cleansing of closets and urinals with a large volume of water, quickly delivered, makes the Watrous Flush Valve an outstanding value. Equally important are its construction features. It is the only diaphragm type flush valve that has outside regulation without restricting the waterway, and having a self-cleansing by-pass.

Interesting and instructive information sent upon request.

THE IMPERIAL BRASS MANUFACTURING CO.

1231 West Harrison Street CHICAGO, ILLINOIS



Keep the profit in your bids with *"all-shaking grates"*

YOU can use the famous fuel-saving features in Weil-McLain Boilers to sell *more* heating jobs and to *protect your profit!* In Weil-McLain Jacketed Boilers, *every* grate is a *shaking* grate—stopping fuel waste and keeping a clean, active fire at every point in the fuel bed. That's a selling story that every home owner is *glad* to listen to!

There are equally effective scientific principles of design in the complete line of Weil-McLain Boilers, including Round, Jacketed, Square, Self-feed, and Smokeless Boilers. Also, Weil-McLain "Cameo" Radiators.

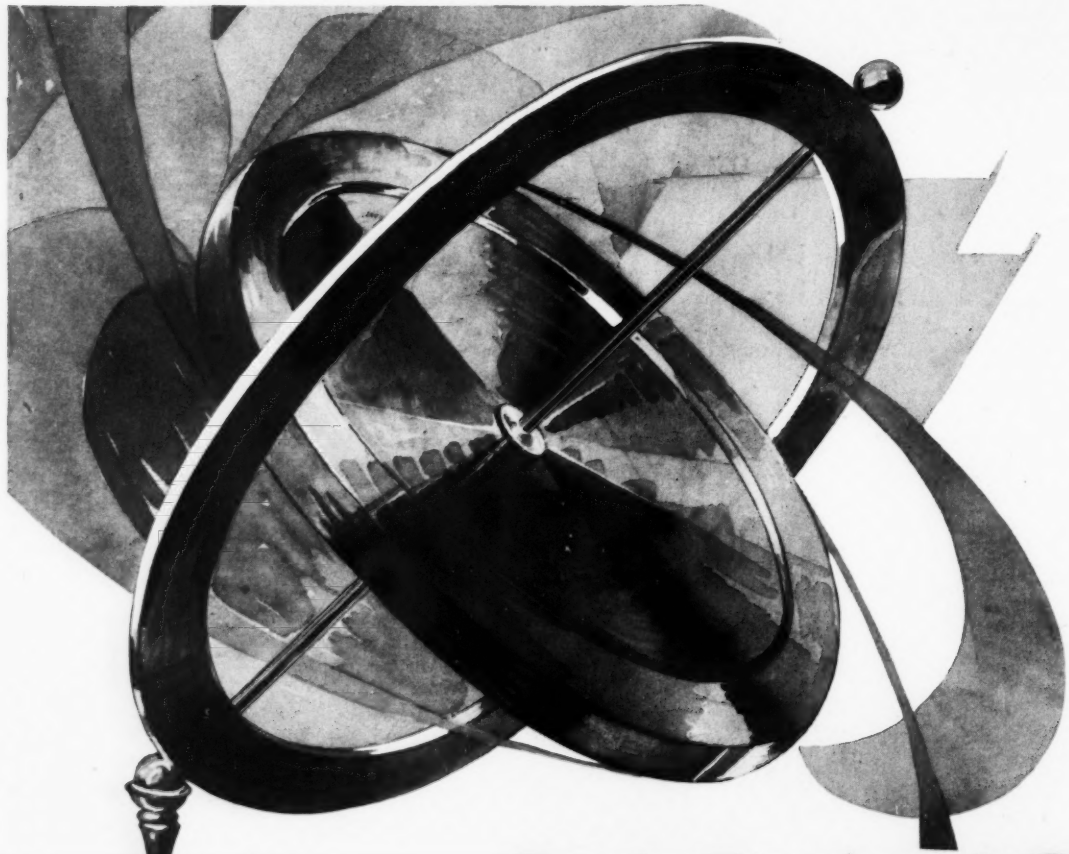
Weil-McLain
SCIENTIFIC COMBUSTION
BOILERS
FIGHT FUEL WASTE AND DELIVER MORE HEAT

WEIL-McLAIN COMPANY

General Offices: Chicago. Boiler Plant and Offices: Michigan City, Indiana. Radiator Plant and Offices: Erie, Pennsylvania. *Canadian Representatives:* James Robertson Co., Ltd., Montreal, St. John, Toronto, Winnipeg.

SHARPEN THE EDGE ON YOUR SALES TALK

In your next bid, stress the strong selling features of Weil-McLain Boilers. They will help you win.



BALANCE

Number three of a series of advertisements emphasizing the perfect Balance of Smith & Wesson Flush Valve Design and Construction.

Complete, positive balance in design, workmanship and quality—gyroscopic steadiness—Smith & Wesson Flush Valves easily fulfill your most rigid flush valve requirements.

Controlled as they are by the hydraulic governor, all excess parts and adjustments are eliminated.

Try a Smith & Wesson Balanced Flush Valve on your next job.

Order them by name from your jobber

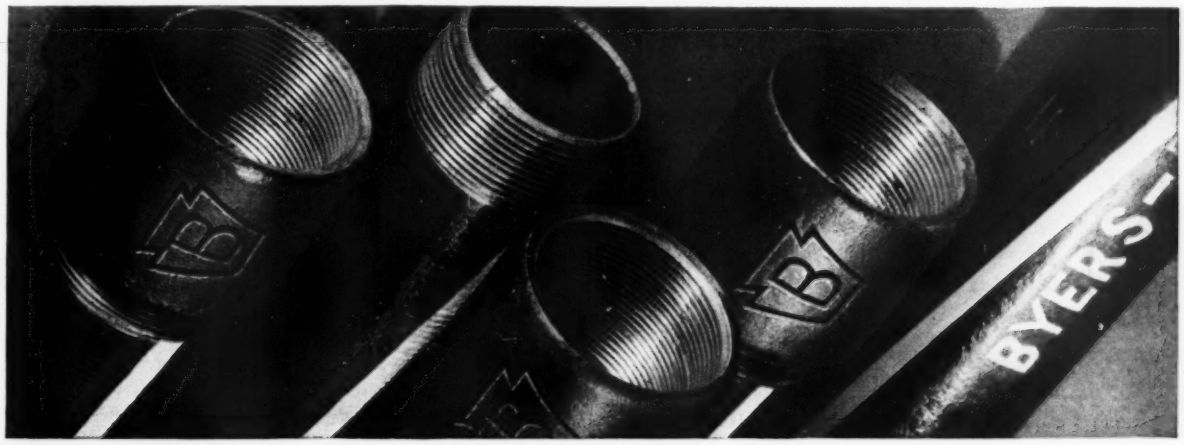
SMITH & WESSON
FLUSH VALVE DIVISION
SPRINGFIELD, MASS.

FLUSH VALVES SMITH AND WESSON

EVERY LEAK IS A KNOCK!

★ ★ ★

Successful plumbers know this and guard against it by pointing out the advantages of "pipe prescription" to their customers at the beginning of a job. Experience is the plumber's best guide in selecting the right pipe for the right place. Where wrought-iron is the proper material, Byers Pipe is the standard of quality — and less



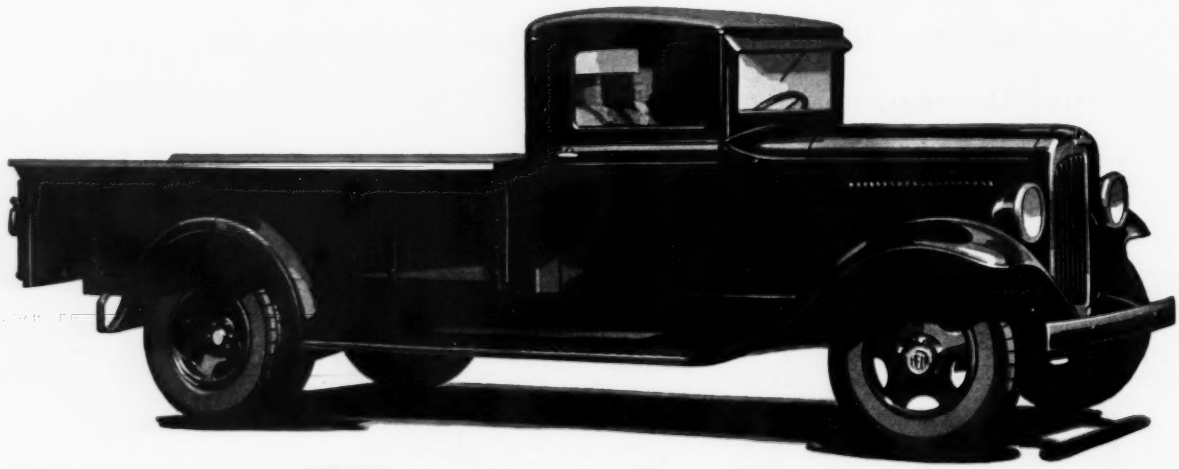
BYERS • GENUINE • WROUGHT-IRON PIPE

durable piping material is made more secure by the use of Byers Genuine Wrought-Iron Nipples, and wrought-iron pipe *always* requires wrought-iron nipples! A. M. Byers Company, Pittsburgh, Pa. Established 1864.

AN INVESTMENT — NOT AN OUTLAY

$625 for REO Quality REO Speed REO Economy REO Long Life

Four-Cylinder $625, Six-Cylinder $725
Chassis f. o. b. Lansing, Michigan
DUAL WHEELS EXTRA



THE new Reo SPEED WAGON sweeps aside all previous work-limitations of trucks in the lowest price class. It fulfills *entirely* the exacting 1½-ton haulage demands of *every* industry.

REO has met the low-price 1½-ton market with the finest truck that sound engineering, extensive factory facilities and ample capital have yet been able to produce. *For comparable quality, size and specifications the new SPEED WAGON is the lowest priced 1½-ton truck in the world!*

THE NEW 1½ TON

REO MOTOR CAR COMPANY, LANSING—TORONTO

REO SPEED WAGON

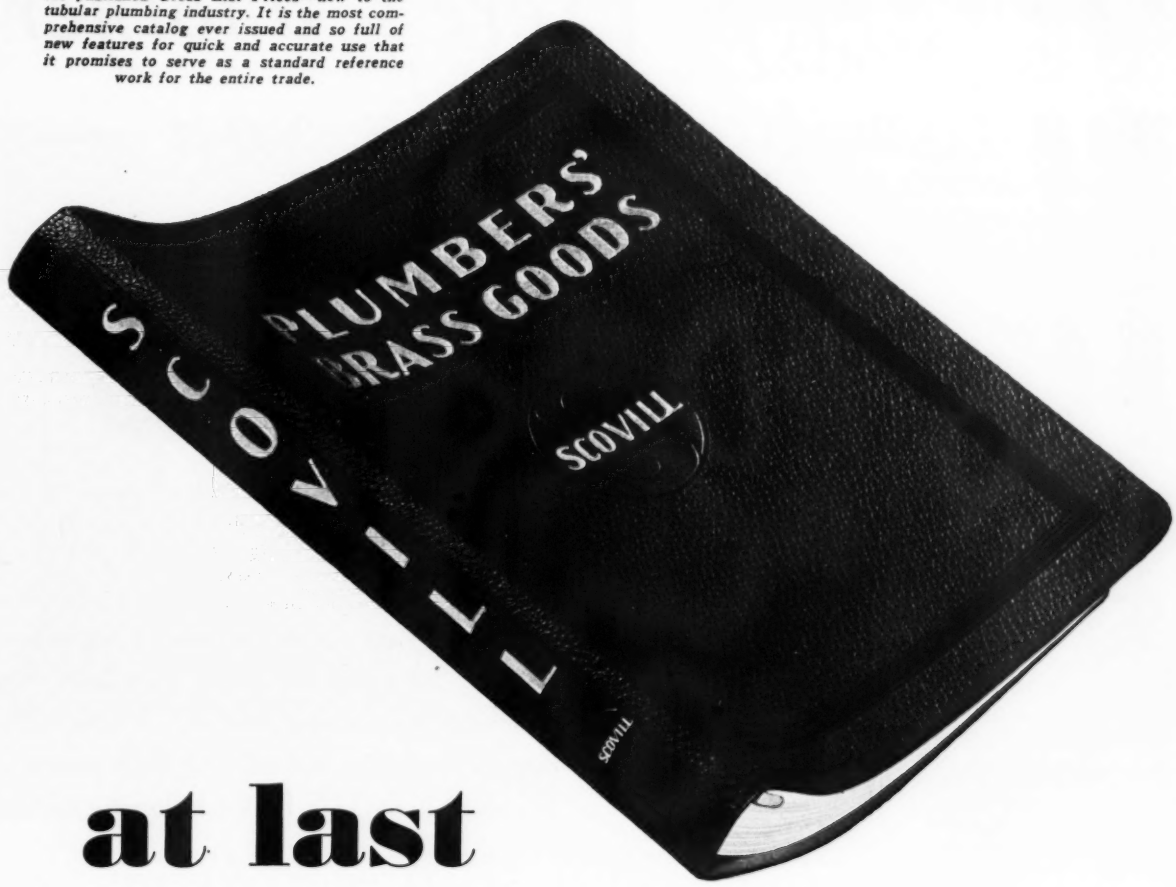
Extra Size, Extra Strength, Extra Power, with assured lower per-mile cost of operation

4 cylinder engine—5 bearings • 6 cylinder engine—7 bearings • Chrome nickel iron cylinders • Extra large piston displacements • Force feed lubrication Strong channeled frame—7" deep • Four Speed Transmission • Full floating rear axle • Forged Spoksteel Wheels • Internal hydraulic brakes

Two liberal wheelbase lengths
More loading space behind cab.

AVAILABLE WITH STANDARD AND SPECIAL BODIES FOR EVERY HAULAGE NEED

This new loose-leaf Scovill volume contains the published Gross List Prices—new to the tubular plumbing industry. It is the most comprehensive catalog ever issued and so full of new features for quick and accurate use that it promises to serve as a standard reference work for the entire trade.



at last

Gross List Prices in the tubular plumbing industry

AT LAST, published gross price lists — found so beneficial to business in various other industries — are now available to the tubular plumbing trade. Scovill have taken this move, confident that it will promote equal opportunity for the small and large distributor, eliminate price cutting, do away with secret rebates and provide a sound market basis for ending the no-profit days in this part of the industry. What could do more to promote sound trade practice than published gross list prices, with discounts changed as and when made necessary by fluctuations in labor and raw material costs?

These new gross list prices are issued in the new Scovill catalog, the most comprehensive showing of Plumbers' Brass Goods ever issued, containing as it does the most extensive line of tubular goods, shower and bath fixtures, flush valves and miscellaneous plumbers' brass articles.

Some of the features of the new catalog are (1) Alphabetical and numerical sequence. (2) An instantly locating thumb-cut index. (3) Alphabetical and numerical indexes. (4) A cross reference system showing where accompanying accessories can be found. (5) Numerous other provisions for quick and accurate reference — standard nomenclature, numbers in bold type, assignment of definite blocks of numbers to given groups with numbers reserved for new articles, etc., etc. Not only in its published gross price lists, but in its other unique and progressive features, this new catalog is designed to serve as a standard reference book for the entire plumbing trade.

It is the hope of Scovill Manufacturing Company (Plumbers' Brass Goods Division) that these various departures may benefit not only ourselves but every wholesaler, plumber and contractor in the industry.

SCOVILL MANUFACTURING COMPANY
PLUMBERS' BRASS GOODS DIVISION
WATERVILLE CONNECTICUT

Scovill Flush Valves . . . Shower and Bath Fixtures . . . Tubular and Miscellaneous Plumbers' Brass Goods for General Plumbing Requirements.

SCOVILL

Scovill

» » » » » » » » » Here's another window poster for you —

ACTUAL SIZE 25" x 4½"

THE companion poster to the one you have on plumbing. Get yours now! Display it! Tie in with this new DOMESTIC ENGINEERING sales help.

Now is the Time!

The heating season is about to open. This poster will make your customers think of their heating systems and think of you as the one to replace or repair them. It will help you sell more heating!

The actual size of the poster is 25 by 4½ ins. The same as the plumbing poster.

Send only four cents in stamps for your poster. Six cents will bring you both the plumbing and heating posters. If you wish them in quantities, we will ship them prepaid anywhere in the U. S. for the following prices:

95 cents for 100 posters
50 cents for 50 posters
25 cents for 25 posters
10 cents for 10 posters

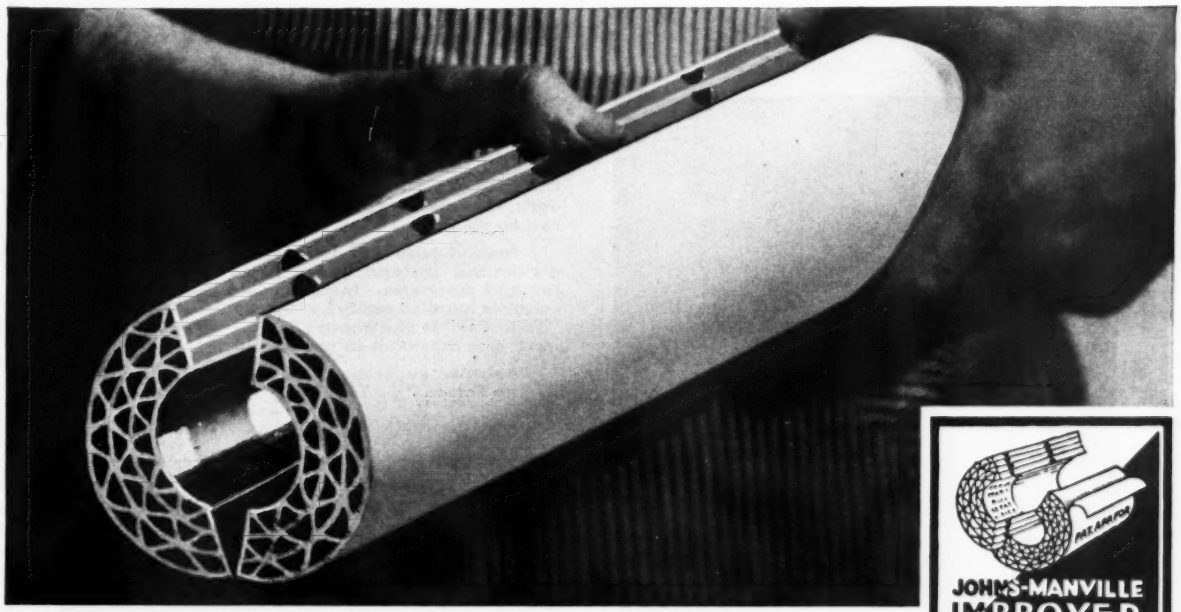
These prices include stickers enough to put them up. Use the poster and slogan in your windows, showrooms, on your trucks, automobiles, letterheads, billheads, envelopes and in your advertising. Drive it home!

Ask us about the Remodeling Charts and the Guide to Remodeling Sales. Write today!

DOMESTIC ENGINEERING

1900 PRAIRIE AVENUE « « « « CHICAGO, ILLINOIS

Use Improved Asbestocel



This red and white label on every section of Improved Asbestocel identifies it to your customers.

for a faster, better job ...more profits for you

EASY to handle—easy to apply—easy to sell, Johns-Manville Improved Asbestocel offers special advantages to you as a heating expert.

Every section of Improved Asbestocel is designed to save money for you and your customer. Strong and substantial, Improved Asbestocel stands up under rapid handling—even a 10-foot drop from a ladder will not damage it.

Every section of Improved Asbestocel is uniform in length and thickness. It is round and stays round. It is straight lined and clean cut. Snap it shut around the pipe and it fits firm and snug without waste motion and without squeezing into place. Improved Asbestocel always makes a smooth neat job of which you can be proud—that will bring you future business—that will deliver more heat per ton of coal.

Improved Asbestocel is the only domestic heating pipe insulation that is nationally advertised. For many years, your customers have been taught to realize that the red band of Improved Asbestocel identifies a superior product, capable of giving greater efficiency and better appearance on home-heating systems.

Try Improved Asbestocel on your next job. Let it speak for itself. There is a Johns-Manville distributor near you—a telephone call will bring prompt service. Get in touch with him or write us direct for his address. Address Johns-Manville, 292 Madison Ave., New York City.

and don't forget the boiler . . .

While you are applying Improved Asbestocel Pipe Covering, put on a boiler covering also that will be in keeping with the quality of the job. We recommend Improved Asbestocel Sheets and Blocks with a finish coat of J-M No. 302 or No. 352 Cement which drys to a smooth white finish. We will gladly work with you in estimating the cost of the job.

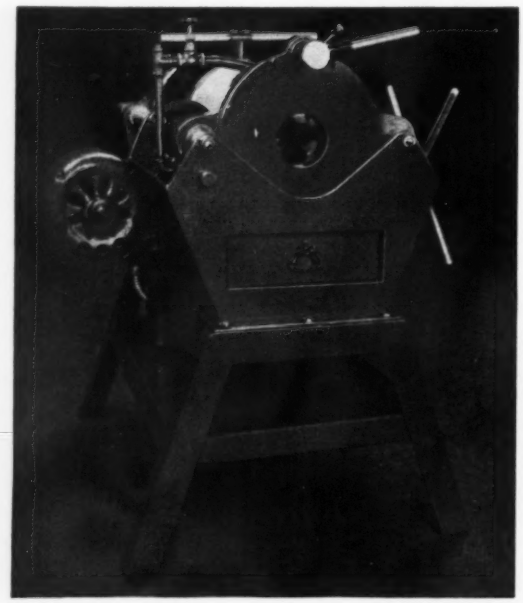
Johns-Manville

JM

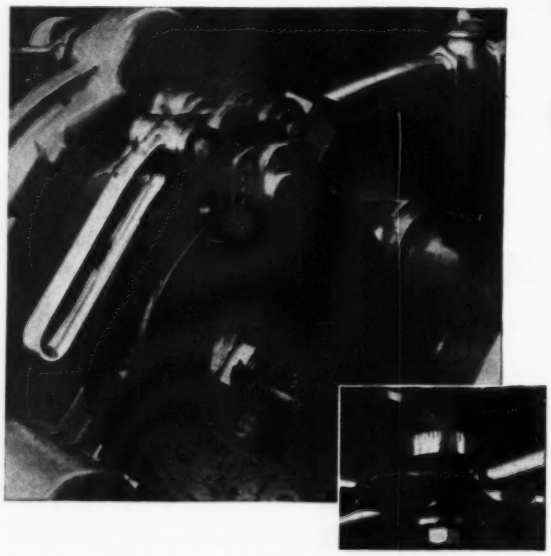
Low Pressure Insulation

AN AMAZING ADVANCEMENT

— IS THIS NEW "TOLEDO" 1" TO 4" POWER PIPE MACHINE



All steel frame gives maximum strength. Large chip drawer and tool tray. 3 H.P. heavy duty motor. Two Universal chucks with wrench throw-out fingers. Rear chuck with step jaws for making up fittings and flanges.



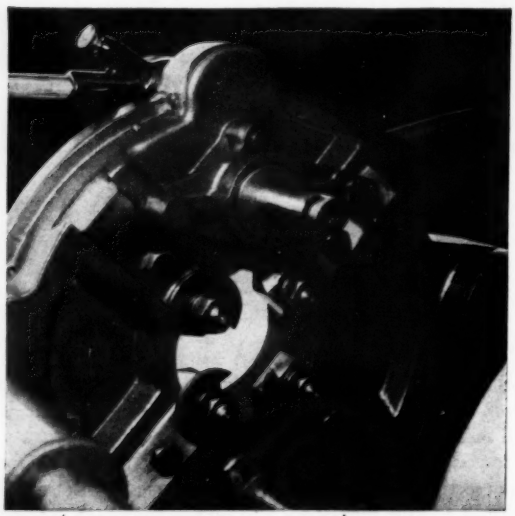
Separate quick opening die heads, and dies for each size. Permit instant change from one size to another. Ample chip clearance. The thread indicator shows the length thread cut.

Pictures speak plainer than words but no picture can fully depict the amazing efficiency of this new "TOLEDO" No. 1-2-4 power pipe machine.

Imagine 2-inch pipe cut off in 3½ seconds, threaded in 18 seconds; 4-inch pipe cut off in 9 seconds, threaded in 42 seconds; and even faster speeds can be obtained.

Instant release of dies after threading. Instant die change. Instant change from cutting to threading and vice-versa. Instant speed changes and all controls handled easily by the right hand. This new "TOLEDO" is the most startling advancement in large pipe machines in years.

Another superior "TOLEDO" machine made by The Toledo Pipe Threading Machine Co., Toledo, Ohio.



Special designed cutter head with 4 knives cutting simultaneously cut pipe in record time. Knives fed by ratchet handle. Oil pump assures ample flow.

IF—

You are interested in getting full information on this most efficient 4-inch pipe machine, mail the coupon today.

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO.

Send me, without obligation, full information on the "TOLEDO" No. 1-2-4 power pipe machine.

Name .....

Street .....

City .....

State .....

Our Industry

DOMESTIC
ENGINEERING
JULY 25, 1931

Opportunity right now is knocking on several doors at once.

Take the plumbing and heating contractor, the manufacturer of gas equipment and the utilities which furnish the gas.

Each has been fighting his own battle with little or no profit to anybody. Necessity is bringing them together in a profitable sales program. The utilities are making gas, whether natural, manufactured or bottled, daily available to thousands of prospective customers. Many manufacturers of appliances who have used the utilities as a sales outlet have almost forgotten the meaning of profit.

And how is the plumbing and heating dealer equipped to meet the needs of these two groups? He is a better merchandiser today than ever before, both a product and a leader of intensive sales drives to replace the falling off in new contract work.

Here's a big new gas production trying to find consumers. And here's a selected group of plumbing and heating dealers taught to sell.

Opportunity's knuckles must be sore from knocking on so many doors at once.

An Ideal Swimming Pool

The owner thought of a swimming pool as a concrete tank with water inlet and outlet, but the plumbing contractor gave him:

Purifying Equipment
Bath House
Water Heaters
Water Softeners
Under-Water Lighting
Showers
Aluminum and Lacquer Finish

By WM. W. STEVENS

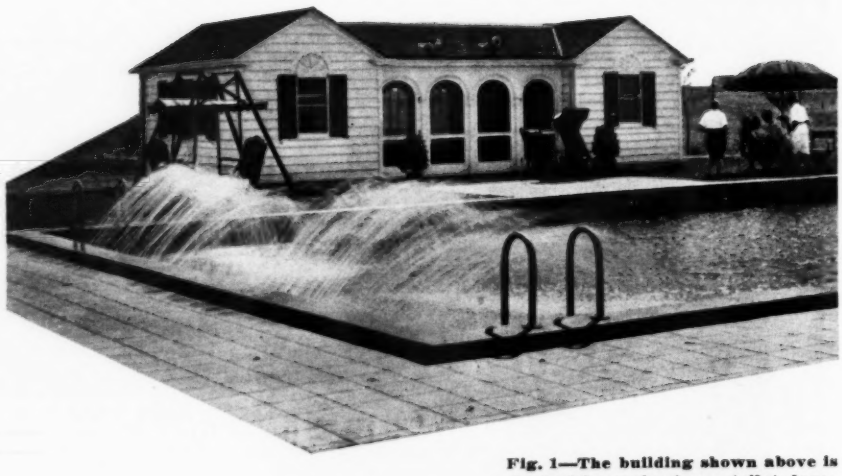


Fig. 1—The building shown above is the bathhouse having a toilet, lavatory and shower in each wing

IN BUILDING the country home shown in Fig. 2, the owner conceived the idea that he wanted a swimming pool in connection. Like most owners, he thought in generalities. His idea merely was a nucleus and as such in no way did it embrace any but the most general features. As far as he knew, the job meant the construction of a reinforced concrete tank with a supply pipe for filling and possibly a drainage line for emptying when the water became too dirty for further use or when the tank was to be closed for the winter.

This article is interesting because it tells how an enterprising plumbing contractor, who obtained the contract for the basis piping installations, worked with the owner and educated him to an appreciation of the importance of a complete job. When the swimming pool was placed in operation, it was a complete job and the plumbing contractor who did the work was responsible for the success of the installation and the satisfaction of the owner.

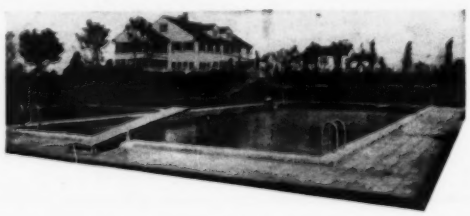
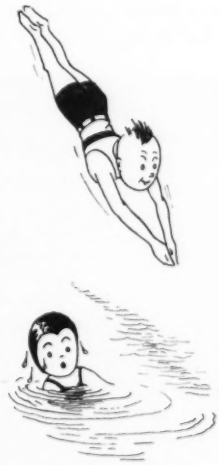


Fig. 2—The bathhouse in Fig. 1 is just at the right outside of this picture. Soft water for the showers and lavatories is piped from the basement of the main building seen in the background

Well Water Supply

The job is located in the country outside of Milwaukee, Wisconsin. Accordingly, since it is beyond the reach of water supply and sewage disposal service, it was necessary to consider these features in making the installation. A well was driven for the supply and a pump was installed in the pit shown in Fig. 9. This pit was made approximately 6 ft. wide, 7 ft. long and 6 ft. deep. The floor of the pit was made of concrete, the side walls were made of brick, the top of concrete and the manhole frame and cover of iron. The result is that seepage or ground water is prevented from entering the well, thus eliminating this very fre-

quent cause of contamination. Notice that the top of the concrete slab is pitched up to the manhole frame and cover. In this way, surface or run-off water is deflected away from the opening in the pit. These features are of prime importance in obtaining and in assuring a clean and bacteriologically pure water supply. The well casing, of course, is brought up above the floor of the pit with the concrete making a tight joint around the pipe. A drain in the pit collects any water which might leak from the pumping equipment and carries it to the house sewer. It goes without saying that the floor is pitched away in all directions from the well casing to the floor drain.



Four hundred fifty feet of 3-in. water supply pipe was installed from the well to the bath house and swimming pool. This gives an idea as to the distance from the well to the swimming pool. Both are on a ridge at the same elevation so there is no possibility of contaminating the well from the pool.

Why the Owner Ordered Purification Equipment

As already has been stated, the owner had only one idea and that was that he wanted a swimming pool. Not being a sanitary engineer, he neither knew nor could be expected to know that anything more than a fresh water supply pipe to the pool was necessary. As a matter of fact, he did not want a large amount of equipment installed. Accordingly, the plumbing contractor took on the work as specified and prepared to make his installation. The work progressed and reached the point where if changes were to be made, they would have to be made immediately if a considerable amount of tearing-out was to be avoided. Naturally, this is to be avoided wherever possible. It will be noted that the contractor followed the job very closely and at the right time, he approached the owner with a well prepared set of plans and story. The substance of it was based upon his observations and conclusions regarding the probable use of the pool. He had noted that there were a number of children on the nearby estates and it was customary for them to spend a considerable amount of their time with the owner's children. This, coupled with the fact that the owner's new swimming pool was the only one in the vicinity made it reasonable to conclude that the pool would be used probably as much by the neighbor's children as by the owner's children. As a result, he pointed this out to the owner and then told him what happens to water when it is held in a swimming pool without being purified continually. He explained, in terms a business man could understand, and the owner is a business man, that he as the owner would be liable for damages in the event that anyone using the pool developed an infection in a minor scratch or cut because of the dirty water. He pointed out that cuts and scratches certainly are not uncommon when people play out of doors. Furthermore, the possibility of contamination is increased as the number of users increases. After outlining just what purification equipment would be necessary, the owner thought the matter over and ordered that it be installed as it would not require changes in the work done.

The original plans called for a bath-house, which is shown in Fig. 1. It was decided to install the swimming pool equipment in the basement of this building, which of course required excavating because under the first arrangement, no such space was needed or provided for. The finished work in the basement is shown in Figs. 5, 6 and 7. In Fig. 5, the right hand wall is the continuation of the left hand wall seen in Fig. 6. In relation to the pool, it is the wall of the bath-house shown in Fig. 1 which is parallel and adjacent to the pool.

Fig. 3—A construction view of the pool. The square boxes in the left-hand wall are outlet boxes for the submerged lights. Three similar lights were installed in the righthand wall

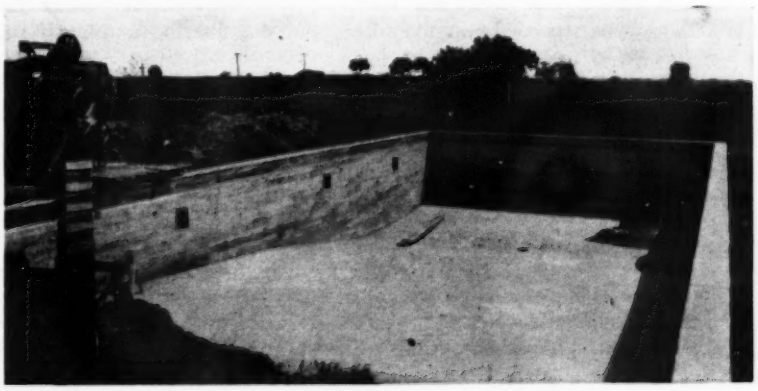


Fig. 4—Below and at the right is the trench for the drainage line which was run in the rear of the bathhouse and which discharges into a creek at the bottom of the hill. In order to maintain grade, at some points it was necessary to dig to a depth of 15 ft. In relation to the view in Fig. 3, this trench was made parallel to the lefthand wall and at a distance of about 20 ft. to the left of it. The big tree in Fig. 3 is alongside of the creek which is parallel to the rear wall of the pool

The Piping and Operation of the Filters

The purification equipment consists of the three filter tanks seen in Fig. 5, and a chlorinator shown in Fig. 7. Each of the filters are 4 ft. in diameter and 6 ft. high and were designed so that the needs of the pool are taken care of when two tanks are operating and one is back-washing. The pool contains 74,000 gals. of water when filled, it being 30 ft. wide and 70 ft. long on the inside and 8½ ft. deep at the deepest point. When all three cleaning the pool without emptying the water from it. Note that the discharge of the vacuum line is directly into the sewer, according to Fig. 7. Also the valving and piping is arranged so that the water from the vacuum cleaner may go through the filters and back into the pool. A 25-in. vacuum is pulled on the suction line and a 5 h.p. electric motor operates the pump.

Referring again to Fig. 5, the lower pipe line carries the discharge from the filters after the water has been

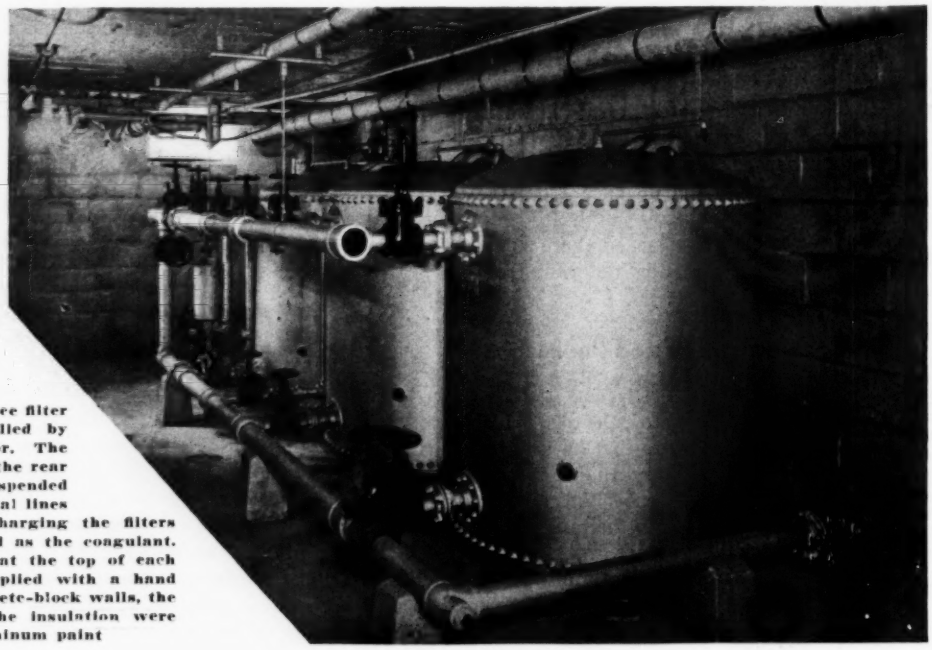


Fig. 5—The battery of three filter tanks which were installed by the plumbing contractor. The small tank to the left of the rear filter tank, which is suspended between the two horizontal lines of piping, is used for charging the filters with alum, which is used as the congulant. Note the small air vent at the top of each filter tank which is supplied with a hand operated valve. The concrete-block walls, the tanks, the piping and the insulation were painted with aluminum paint

of the filters are working, they handle the entire contents of the pool in 8 hours. The pump and valving shown in Fig. 7 is arranged so that the water can be taken either from the pool or from the fresh water supply and discharged either to the sewer or to the filters and thus back to the pool. The sewer connection is shown on the extreme right hand side of Fig. 7. The discharge of the pump is, naturally, on the right hand side of the pump in this view and the intake connection is seen at the left. The vertical pipe covered with insulation at the extreme left is the fresh water supply from the well. Outside of the picture at the left is the suction pipe from the pool which also is valved before it connects with the already mentioned fresh water supply and pump suction line. With this arrangement it only is necessary to close the pool suction line valve and open the fresh water supply valve shown to send fresh water to the pool through the pump. To take water from the pool for chlorination and filtering, the operator opens the pool suction valve and closes the fresh water supply valve. The chlorinating apparatus is shown in the rear of Fig. 7. The horizontal pipe joining the tee at the lower right hand corner is the vacuum line for cleaning the dirt from the pool. The two vacuum cleaning outlets are located at convenient points at the edge of the pool and when the pool is to be cleaned, the operator attaches a length of hose to the connection. The idea of the vacuum cleaning system is to permit filtered and empties into the pool through the spray seen in Fig. 1. Note the complete valving facilities for controlling the various operations. The water may be taken from the pool and sent back to the pool with treatment by chlorination only. Second, it may be taken from the pool and may be forced through all or any one or two of the filters, finally reaching the pool again through the main discharge line. Third, the water may be taken entirely from the fresh water supply line. Fourth, any one, two or three of the filters may be back-washed while the remaining filters are operating normally. The container suspended between the two horizontal pipe lines is the device for introducing the coagulant into the filters. The coagulant forms a slime-like substance over the particles in the filters and the filtering and purifying action is due to this.

One of the main differences between the ordinary indoor swimming pool and the outdoor pool described in this article is in the water supply inlets. In this pool there is only one supply inlet which is located in the middle of the wall at the shallow end. This is carried up to the spray pipe shown in Fig. 1, and divides that pipe into two sections. Each section may be operated independently of the other, both as to discharge and as to the angle which the spray makes with the surface of the water. This angle is varied by rotating the pipe in a packed fitting. The spray, of course, is caused by small perforations in the pipe.

Use of the Spray in Tempering Water

There is more to this spray than merely a means of making the pool attractive to the eye. The fresh well water discharges from the pump at a temperature of 42 deg. Fahr.

Under normal conditions, it would take some time to heat the water naturally to the bathing temperature of from 68 to 72 deg. Fahr. The cost of heating the 74,000 gals. by artificial methods would not be considered by the owner. Accordingly, he devised a substitute method. When water is broken up into the form of a spray, it rapidly becomes the same temperature as the surrounding air. This fact was applied to the problem and the result was the installation of a spray extending over the entire length of the shallow end of the pool. Tests were run and it was found that it required only 18 hours to heat the water naturally to 64 deg. Fahr. The actual period, of course, was 1½ days insomuch as the spray was operated only 12 hours of the 24. Any heating effect during the night was not considered. Probably there would be a cooling effect in most cases after the sun goes down.

The spray has another practical use. When leaves or sticks and other floating material fall into the pool, the spray is lowered by the attendant, until it throws water horizontally at the level of the surface of the pool. This sets up a flow which causes all of the floating objects to be washed into the scum gutter at the far end of the pool where they are removed by hand.

A third use of the spray is for the creating of effects pleasing to the eye. Only one spray is turned on at the start and it is lowered so as to cause an uneven wave action on the surface of the water. When the wave action is established, the spray is raised to its normal discharge angle of about 45 degrees. Also, the second spray is turned on and raised to the same angle. The wave travels along the spray holes, covering them in succession and the result is reflected in the shape of the spray which corresponds to the shape of the wave. In fact, the spray becomes a moving enlargement of the wave motion. This has proven to be especially effective at night in combination with the under-water lighting.

Electric Water Heaters for Bath House

Notice there is no chimney rising from the roof of the bath house. This resulted from a dislike for chimneys on the part of the owner's wife, who felt that it would detract from the architectural lines of the building. The territory is served with artificial gas but not being able to vent the gas burning equipment by natural means, it was impossible to utilize it. A battery of three electric water heaters, each rated at 5,000 watts per hour, were installed, consequently, as a solution to the water heating problem. They automatically maintain the water at 165 deg. Fahr. and a reducing valve is installed to supply water at 110 deg. Fahr. as a protection for the children who use the showers. These are seen in connection with the hot water storage tank in Fig. 6, which has a capacity of 300 gals. The electrical control facilities are quite prominently in evidence and some idea of the electrical connections may be obtained from the conduit. While the electric water heaters are automatic in operation, they may be operated manually by means of the switches at the top of each heater. It requires 5½ hours to heat the water up to 142 deg. Fahr. in the storage tank. This equipment is directly under the bathroom located in the left wing of the bath house. The ceiling of the basement, or in other words the floor of the bath house proper, is of reinforced concrete. Accordingly, the piping for the bathroom fixtures is suspended from the ceiling of the basement as shown. Notice the several traps and the soil and waste piping.

In Fig. 6, the insulated pipe along the left hand wall, running suspended from the ceiling, is the cold water

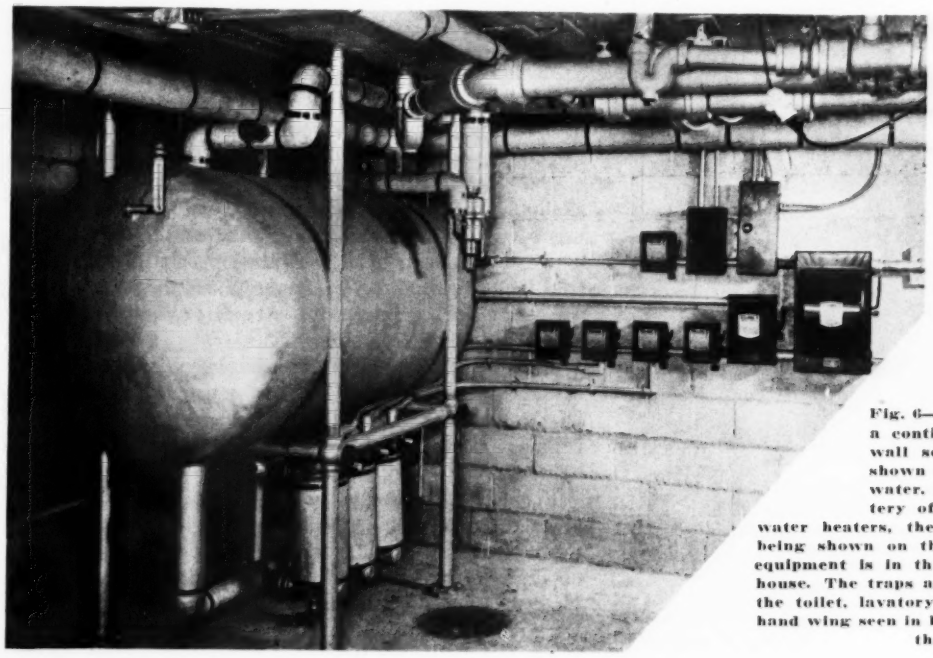


Fig. 6—The lefthand wall here is a continuation of the righthand wall seen in Fig. 5. The tank shown is for the storage hot water. Below the tank is a battery of three automatic electric water heaters, the fuse and switch boxes being shown on the rear wall. All of this equipment is in the basement of the bathhouse. The traps and drainage lines serving the toilet, lavatory and shower in the lefthand wing seen in Fig. 1, are suspended from the ceiling

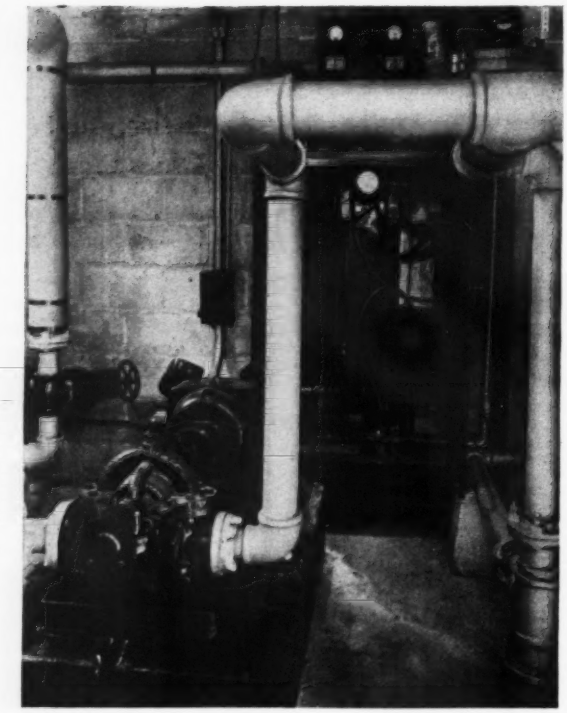


Fig. 7—This also shows equipment contained in the basement of the bathhouse. On the rear wall is the chlorinator and in the foreground is the centrifugal pump. The main center pipe is the discharge line which is connected to the upper horizontal line to the filter tanks shown in Fig. 5

supply from the well to the pump. It was insulated in order to prevent condensation. Note that it is the continuation of the pipe nearest the wall in Fig. 5. The line rising out of the top of the tank is the hot water supply and runs to the fixtures in the left wing of the bath house. It doubles back in supplying the fixtures in the right wing and is seen again in Fig. 6 as the insulated pipe at the ceiling in the center of the picture running parallel to the left hand wall. Its continuation also is seen in Fig. 5.

Why the Owner Ordered Underwater Lighting

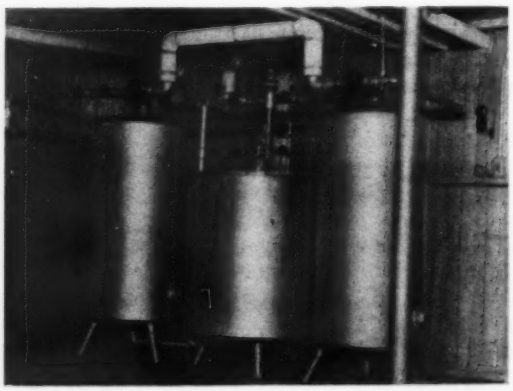
The plumbing contractor had the idea that it would be a good thing to install underwater lighting. He proposed this to the owner and anticipating objections, he suggested what would happen in the event that the pool were used at night. As in the case of talking for the purification equipment, he pointed out the probability of the servants and neighbors using it especially when he and others of responsibility were not at home. It was not difficult for the owner to imagine a situation where someone might use the pool at night and in a dive or a fall injure himself so as to become unconscious while in the water. Naturally it would be impossible to find the drowning person in the dark. Aside from the horribleness of the situation, the contractor pointed out the possibility of the owner being liable for damages. An order was given for the installation of six under water lights. These were taken under the plumbing contractor's contract and with a little co-operation on the part of the mason contractor, provisions were made for them in the reinforced concrete work.

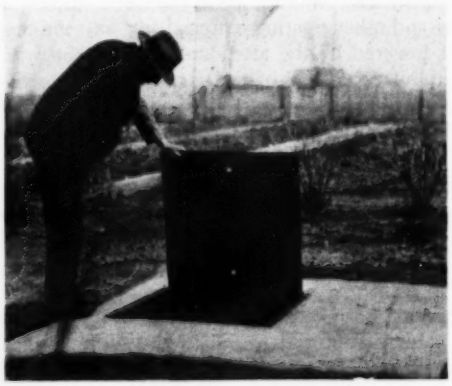
Three lights of 500 watt capacity each were installed on each side of the pool and the construction was such that the interior of the light chamber is dry. By tubes, running up to the walk around the pool, in back of each light, the bulbs may be handled above water.

In addition to the sense of security which has been given the owner as a result of the lighting installation, the actual light and color effects which he is able to obtain at night have made him enthusiastic about them. Note that two flood lights were mounted on the roof of the bath house but these seldom are used insomuch as the under water lights in this installation have been found to be sufficiently effective and adequate.

Fig. 8—Below and to the left is the water softening equipment located in the basement of the main house, seen in the rear of Fig. 2. One tank is charged while the other is in use. The low center tank is for the brine

Fig. 9—Below: All water is supplied by a pump in connection with a well. The unit is installed in the pit shown in this view which has brick walls, a concrete top, a concrete floor, and an iron manhole cover. With this sanitary construction, it is impossible for seepage water to enter the pit and contaminate the well water





Alarm Connected to Water Softeners

Since the well water supply for this job contains 40.2 grains of hardness, it remained for the contractor to provide water softening equipment to make a complete installation of it. This he did as indicated in Fig. 8, where two softening tanks and a dosing chamber are shown. With the two tanks, one may be recharged and held in readiness while the other is in operation. Here a unique arrangement was worked out to insure against the possibility of the owner receiving hard water when he turns on the soft water faucet due to the charge being used up in one tank before the water is diverted to the other. A meter was installed on the common outlet line of both tanks. This is connected electrically with a bell so that then a certain amount of water has been drawn off through the tank in use, the bell will ring. It is set so that the bell will ring when an amount of water one or two hundred gallons under the capacity of the tank has been softened. The attendant then has ample time to go to the basement, manipulate the valves and switch the supply to the other tank before the softener becomes unable to operate further without recharging. The warning bell is seen at the right in Fig. 8. There was installed 300 ft. of 1¼-in. soft water line from the house to the bath house as the water softening equipment shown serves all requirements from the basement of the main house.

Of general interest is the fact that the entire pool is served with drain-tile under and outside of the footing. In addition the drain-tile system extends to include the entire property. All of the waste from the house, the pool, the bath house and the tile discharges into the main sewer line, a construction view of which is shown in Fig. 4. In order to maintain grade, at some points it was necessary to dig to a depth of 15½ ft. In relation to the swimming pool, the trench was dug parallel to it in back of the bath house. The line discharges into a creek flowing at right angles to it at the bottom of a slope with a drop of perhaps 30 ft. below the water level in the pool.

The finishing touch of the entire job was the painting which was done by the plumbing contractor. All of the walls in the bath house basement, the piping, the tanks and the insulation were covered with an aluminum paint. The valves were covered with a black lacquer and when the work was done, it presented a very striking appearance. The owner expressed his satisfaction with the results by having his entire basement in the main house painted in a similar manner.

◆

Milwaukee Railroad Builds New Engine

A new type of locomotive burning ordinary furnace oil similar to that used in thousands of American homes has been built by the Milwaukee Railroad in its fight to maintain the supremacy of steam. The new unit, called the "Locomotor," is 61 feet long and weighs 127,000 pounds. In outward appearance it resembles a steel baggage car, but hauls a number of coaches. Engines are located beneath the floor to leave space for baggage. The oil burning engines generate 500 horsepower and the new unit uses steam at 700 pounds pressure.

Cheap Prices Arouse Public Prejudice

A flat rate on minor plumbing and heating repairs has a number of advantages as well as disadvantages. If the flat rate system were used by every plumber in town the situation in some respects, would be ideal. But who is going to solve the problem of having every plumber use this system? It is almost impossible, for you would still have the shysters, alley shops and a certain percentage of "so-called intelligent master plumbers" to contend with who insist upon doing everything for less money.

Examine the enclosed clippings of newspaper advertisements of several so-called supply houses of this town. These and others, including one of the largest chain stores in the world, offer their merchandise at retail prices often below the plumber's cost. They recommend to their customers, one or more plumbers or steamfitters to install the merchandise. How can the established plumber compete with such methods? The writer has inquired into the amount of business done by this class of jobber and from the information received, the amount of merchandise they move is tremendous.

All of this business rightfully belongs to the established supply house and the established plumber and heating man.

The flat rate system is O. K. but its use will not remedy the home owner's opinion that he is paying too much for his plumbing and heating. We must eliminate the cause of the home owner's erroneous ideas and to do this we must eliminate the price cutting jobbers and plumbers who have been poisoning the home owner's mind. How are we to do this? I am no prophet nor the son of a prophet, but one method to combat this evil is by educating the public to quality and fair prices. Where does the average man get the idea that the plumber is a thief and a robber? The direct house advertises cheap merchandise and stresses price. What is the established jobber and manufacturer doing to combat this inferior merchandise?

Educate the public to quality and fair prices

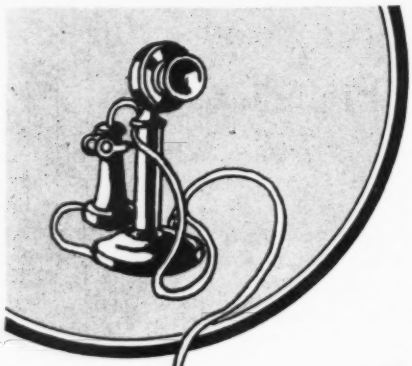
How many of their advertisements explain to the public the difference in their quality and that obtained at the direct houses?

Then, also, a lot of plumbers need to be educated along the lines of co-operating with those jobbers and manufacturers who sell through them. Many a good plumber patronizes the direct house, perhaps not realizing the harm he is doing himself, as well as his brother tradesmen.

The manufacturer needs a dose of this medicine also. Walk into any one of these direct houses and you will find scores of nationally advertised products that also repose on the shelves of the established supply house.

The flat rate system can not be successful as long as we have these evils to contend with.

St. Louis, Mo. (Signed) J. George Bender.



The phone rings . . . . "Keokuk, Iowa, calling," says the operator . . . . and at the Keokuk end of the line is a heating contractor who is asking to be furnished a

Piping Design by Long Distance Telephone

LAST Friday evening I received a long distance call at home from Keokuk, Iowa. It was such an unusual one that it may be worth while repeating. After the usual exchange of greetings, the conversation proceeded about as follows:

"Do you remember the shoe factory up on the hill?"

"I certainly do, if it is the job we visited the last time I was in Keokuk. As I recall it, they needed a new pair of boilers, but the home office was slow about approving the expenditure."

"Yes, that's the job. Well, they just received the approval of the home office and insist that the boilers be installed this week-end. I was lucky enough to find two boilers of the proper size in St. Louis and they will be here tomorrow morning. I have to draw up the boiler piping tonight in order that the supply house can cut it tomorrow. I wonder if you can tell me over the phone how that piping should be arranged."

"I can try," I said. "Suppose you get a paper and pencil. I'll draw the piping here and will explain each line to you as I draw it so that you can draw it too. In that way I believe we can be sure of understanding one another."

"Fine! Just a minute until I find paper and pencil." Then, "All right. Where do we start?"

"First draw two boxes side by side to represent the boilers. Now draw a small circle in the top of each one to represent the steam tapping and a small one on each side as the return openings."

"I've got that."

"What size boilers are you using?"

"Two number 4524 Smokeless."

"They have one 6-in. steam outlet and two 3-in. return openings, don't they?" I said.

"Yes."

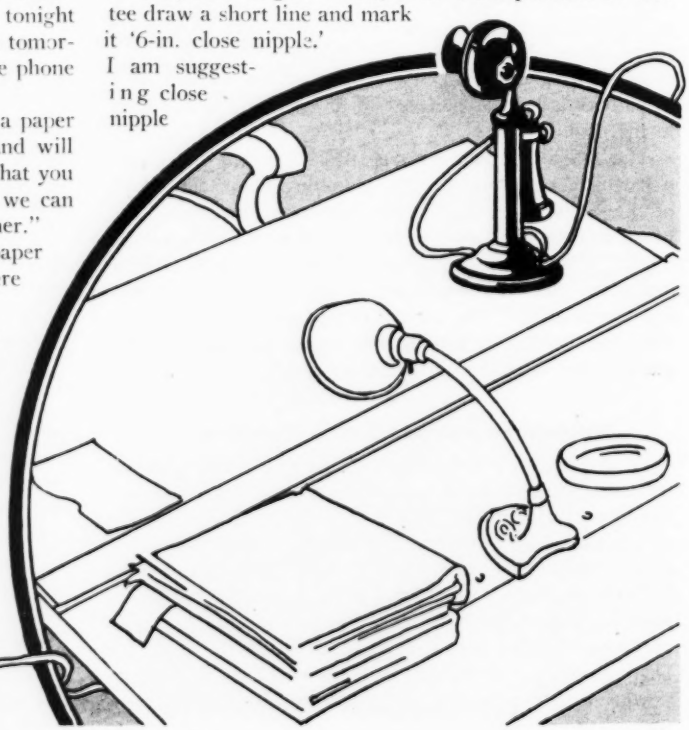
"Very well, then. Draw a short vertical line out of each steam opening and mark it '6-in. short nipple.' Then draw a 6-in. elbow on top of this nipple. From the outlet of this elbow draw a lateral long enough to reach just beyond the side of the boiler and mark it '6-in.' Are you following me?"

"I surely am. Keep on," he replied.

"Now comes one of the hard parts. On the end of this 6-in. lateral draw a 6-in. bull head tee, with the run vertical."

"What is that for, the bleeder?"

"Yes, that's right. Now, from the top outlet of this tee draw a short line and mark it '6-in. close nipple.' I am suggesting close nipple



to be safe. If you find that you have plenty of head room you can use a longer one. You understand what I mean, don't you?"

"Yes, that is a good idea."

"On top of this close nipple draw a 6-in. gate valve and then another 6-in. close nipple," I continued. "Draw a 6-in. by 8-in. elbow with the 8-in. outlet facing the other boiler. If you want to, you can use an 8-in. elbow with the inlet bushed to 6 in."

"Does this mean," he asked me, "that you suggest an 8-in. header?"

"Yes."

"How do you figure that?"

"Well, in everyday language, I multiplied 6 x 6, obtained 36 as result, then multiplied 36 by 2 because there are two boilers, and the result was 72. I know that 8 multiplied by 8 is 64, which is not quite big enough, but if we used the 10-in., which is the next size pipe, we would find that 10 multiplied by 10 is 100, which is too big. So I compromised on an 8-in. header. Is that clear?"

"It surely is."

"You understand, then, that the two 6-in. by 8-in. elbows will be connected to an 8-in. header and that all of the steam mains will be connected to this header, don't you?"

"Yes, I understand."

"Let's go back to the 6-in. bull head tee, now. From the bottom outlet draw a line and mark it '6-in. drop to water-line.' At the bottom of this drop show a reducer and mark it '6-in. by 2-in. reducer below water line'."

"Why use 6-in. all the way to the water line? Why not reduce at the bull head tee?"

"Because," I replied, "we want a storage space or reservoir for the water that will be separated from the steam."

"I see. Do you always reduce to 2-in.?"

"No, I have a little rule of my own. If the steam outlet is 3½ in. or smaller, I reduce to 1½ in. If it is 4 in., 5 in. or 6 in., I use 2 in. For steam connections 7 in. or larger I reduce to 2½ in."

"I understand."

"Connect the bottom of the reducer to the return opening in the same side of the boiler through a 2-in. vertical pipe, an elbow, and a nipple. That completes the steam piping. Have you any questions?"

"No. Let's get the return piping planned. Remember, this is a pump job."

"All right. From the return opening on the other side of the boiler show a 3-in. nipple with an elbow on the end of it. From the outlet of the elbow draw a 3-in. line long enough to clear the back of the boiler. At the end of this pipe show a 3-in. by 1½-in. by 3-in. tee, with the 1½-in. outlet farthest away from the boiler. Connect a 1½-in. nipple and gate valve to this opening for use as a drain. If you wish, you can connect the outlet of this valve to the sewer. All clear?"

"Yes, but how did you figure what size drain to use?"

"Ordinarily I use a drain one-half the size of the return opening, except that I never use one larger than 2½ in. for low pressure boilers.

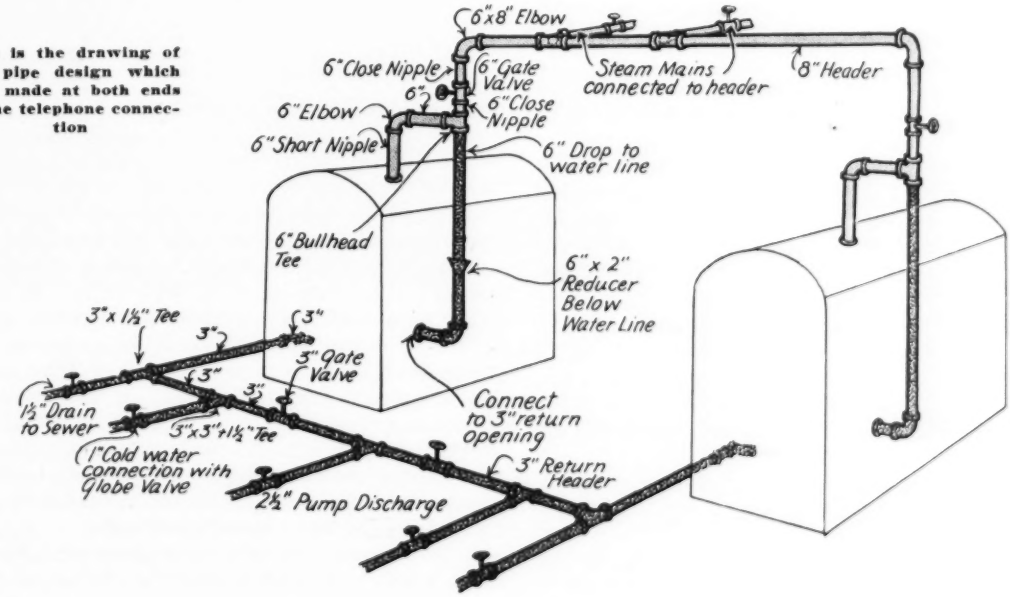
"From the 3-in. side opening of the tee draw a 3-in. nipple and then a 3-in. x 3-in. x 1-in. tee. To the 1-in. side outlet of this tee make a 1-in. connection to the city water line with a 1-in. globe valve. To the 3-in. run connection of the 3-in. x 3-in. x 1-in. tee connect another 3-in. nipple and a 3-in. gate valve. You've noticed, no doubt, that I am suggesting a 3-in. return header."

"How did you determine the size of the header?" he inquired.

"I usually make it the same size as the return connection. From the outlet of the 3-in. gate valve draw a 3-in. pipe to a point about half way to the return opening of the other boiler. At this point draw a tee. What is the size of the pipe discharge?"

"It's 2½ in."

"Then make this a 3-in. x 3-in. x 2½-in. tee and con-



This is the drawing of the pipe design which was made at both ends of the telephone connection

nect the pump discharge to the 2½-in. outlet. The 3-in. outlet should be connected to the second boiler in exactly the same way as I have described for the first one. Be sure to provide a separate return valve, cold water connection, and drain for the other boiler, and, by all means, be sure to install 6-in. steam valves on each one exactly where I have suggested. Do you think you thoroughly understand everything now?" I asked.

"Yes, I do. As a matter of fact, I'll simply have to dress up my sketch a little and it will be ready to give to the supply house."

"Then I'd better sign off now, or this call will cost you more than your profit on the job."

"I guess you are right. Many thanks, and good night."

Making Weather for Human Comfort

By WILLIS H. CARRIER*

who reviews the factors which, he feels, will lead to the development of a great market for air conditioning in every department of human life

In the Executives Service Bulletin of the Metropolitan Life Insurance Co.

SCIENTIFIC air conditioning involves the control and utilization of air as the medium most directly important to the health, comfort and efficiency of the human being and to the most successful operation of manufacturing processes.

If the acceleration in the application of air conditioning continues in the ensuing as in the past twenty years, and there is every reason to believe it will, there should be, in this country, an annual business of over $250,000,000 in producing artificial climate, in other words, in manufacturing weather. Such values may be interpreted in terms of demand for power, for materials and machines, for the labor of many men in many trades. It will include air conditioning for industry and for human comfort, not only in the home, but for all enclosures where men assemble—in auditoriums and theatres, railway trains, offices and stores.

Manufactured weather is neither "heating" nor "ventilating" nor "cleaning" nor "dehumidifying," but a correlation of all of these factors, plus the effective distribution of the conditioned air so that it may perform, uniformly and unfailingly, the functions specifically desired.

Industrial installations represent widely divergent applications of the functions of manufactured weather. In some industries, proper humidity conditions are necessary for successful production. In others, uniform temperature as well as humidity control must be assured. In many cases the purity or cleanliness of the air is also most important, as in the manufacture of food products, pharmaceuticals, confectionery and in fine printing work.

In the manufacture of fine chocolates or of cigarettes, humidity is a factor of prime importance. In making safety razor blades, air conditioning is called upon to dry the air so that when it is cooled by expansion in the pneumatic blade-making machines, it will not deposit moisture on the fine steel blades. In the manufacture of rayon, air conditioning is required in almost every step in the production. Speaking generally, rayon probably could be manufactured on an average of only two days a week, if it were not for the assurance of proper atmospheric conditions by air conditioning.

In innumerable manufacturing processes, manufactured weather provides a scientific method of drying

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which literally has revolutionized many industries, affording positive technical control, utmost speed and minimum production cost.

Developed in its inception to overcome manufacturing difficulties, the new science of air conditioning today stands on the threshold of an even greater development in the field of human comfort and working efficiency. From the standpoint of the performance of physical labor, the best results are obtained with an indoor relative humidity of about 60 at temperatures 65 and 70 degrees Fahrenheit. The labor output in British factories has been found to undergo a seasonal variation which varies inversely as the mean outdoor temperature. It varies from 104 relative output in January with a mean outdoor temperature of 42 degrees to 94 in August with a mean outdoor temperature of about 62 degrees. Atmospheric conditions also affect the frequency of industrial accidents. Investigations in British munition plants show that the frequency of accidents reach a minimum at 67.5 degrees dry bulb temperature and that they increase above and below this temperature.

In the greater part of the United States there are less than 100 days of the entire year when the outdoor weather is ideal. Added to this, modern cities impose on their residents conditions of crowding, the dirt and

Willis H. Carrier

fumes of industry, and the nerve racking noises of traffic. Control of indoor weather makes it possible for man to counteract these conditions by making his indoor climate ideal every day of the year. For, in addition to the possibility of absolutely regulating the temperature and humidity of the air and freeing it of dust, a uniform circulation is assured, with consequent freedom from drafts and "air pockets."

In summer, the air conditioned theatre, cooled and dehumidified, now offers its patrons comfortable atmospheric conditions regardless of the temperature outdoors. In new theatres, it is as much a part of the equipment as the stage itself. Similarly, department stores, office buildings, banks, hospitals, and large public buildings are beginning to adopt air conditioning.

In Fitchburg, Mass., the Simonds Saw and Steel Company, constructing industry's first windowless factory, has adopted scientific air conditioning, not only to promote the comfort and safeguard the health of employees, but also to stimulate productivity and general efficiency. An air conditioning system has been installed in the Nation's Capitol, and more recently, in the new White House Executive Offices where it has proved so effective that it is now being installed in the private office of the Secretary of Commerce in the new Commerce Building.

The principles of this system of manufacturing weather have been adapted for domestic usage. At present the average home is kept warm in winter with a dry heat which increases susceptibility to disease. Air that is too dry holds dust in suspension due to the electrostatic effect on dust particles. We need to "vacuum clean" our air as much as we need to vacuum clean our rugs. It seems quite probable that the common cold, from which so many people suffer chronically, is induced largely by improper heating methods, and particularly by lack of humidification.

In the next ten years we will reach the stage where the average suburbanite will rise in the morning refreshed from sleeping in a house whose temperature and humidity is conducive to good nature and sound nerves. He will travel to the city in an air conditioned railroad train—there is already an air conditioned diner running between New York and Washington and another, the first transcontinental diner, on the Santa Fe. Reaching his office, he will enter the invigorating atmosphere of weather manufactured to suit him and he will lunch in comfort under the same conditions.

The manufacture of weather by a single source of energy will exercise a national influence on living standards. Individual efficiency will be increased, health improved and life prolonged. Air conditioning in the tropics will doubtless cause a redistribution of production tending to establish many manufacturing processes at the sources of raw materials.

The value of manufactured weather is beyond accurate calculation. In its industrial applications certain definite savings can be gauged on the basis of discernible production improvements, but above and beyond these figures, is its value from the standpoint of the increased efficiency and well-being of the workers. On the other hand, where manufactured weather is employed solely for comfort, its value cannot be estimated, although the summer attendance figures of the air conditioned theatres as against the former hot weather slump speak for themselves.

◆

The law of probabilities has been applied in figuring the number of coincidental discharges of fixtures, assuming complete overlapping of flush. For example, the computed frequency of a load of five water closets out of ten is once in four years allowing a frequency of use of each water closet once every five minutes for three hours daily. A computed coincidental load of six water closets out of ten is once in 226 years.

Correct *and* Incorrect Bathroom Connections

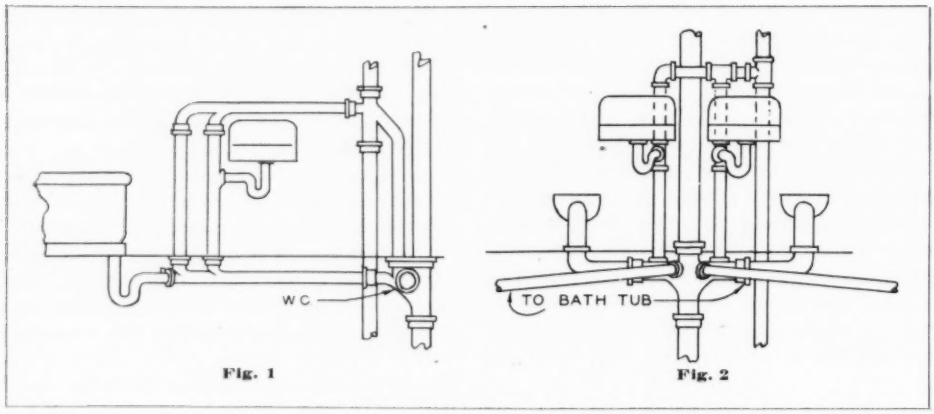


Fig. 1 Fig. 2

A discussion of the labor-saving qualities of the so-called crowfoot fittings

By R. M. STARBUCK

IN A previous article on this subject we made the point that a great variation in bathroom connections had been created by the development of the cast iron closet bend with special side inlets for other bathroom fixture wastes.

Another prolific source of variations in these connections has been the constant increase in recent years of the so-called crowfoot fitting. This fitting is a water closet drainage fitting with special waste and vent openings for various other fixtures. Fittings of this general type have appeared in recent years in incredible numbers. Great cleverness has been used in their development, and they are now obtainable for practically every combination of fixtures that can be conceived.

The combination fitting, if it may be so called, received a great impetus from the backing it received through the publication of the Hoover report.

We show in Figs. 1 and 2, two of these drainage fittings. If it were the purpose of this article to go into the subject of bathroom connections based on the use of special fittings of this general type, there would be no end to it. These two illustrations will suffice for the discussion of the special point we wish to bring out—their labor-saving qualities.

There is no question whatever that by their use a plumbing installation is completed in less time than by means of common fittings. Everywhere, and in every line of endeavor we see the same development going on which results in greater production with less labor. This is perhaps the most outstanding question of the present day. In some way or other it probably affects each one

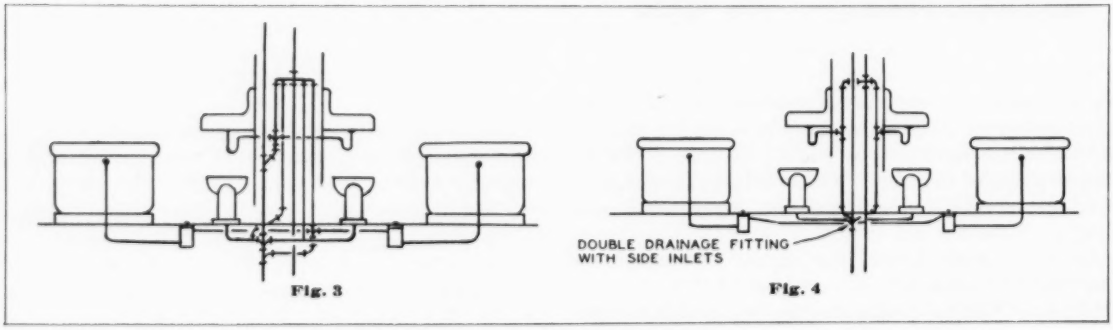


Fig. 3 Fig. 4

of us; some of us no doubt suffer for a time because of it. Nevertheless, if this tendency is a progressive one it is useless for anyone to fight against it, for in the end it is found to prevail, as all history proves.

If it is true that the type of fitting we are discussing makes as good or a better job than common fittings, and this is accomplished at less cost, then it goes without saying that the use of such fittings should not be obstructed.

Of seven general conclusions reached by the Hoover investigation into plumbing practice, as given on page 176 of the Hoover report, here are two of them:

"A back-vented side-inlet branch to a crowfoot fitting

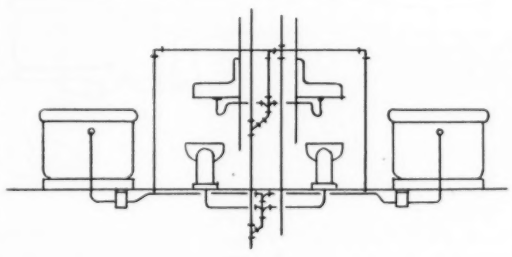


Fig. 5

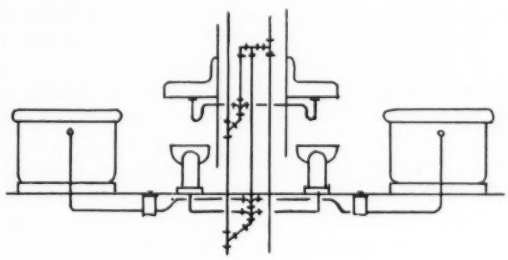


Fig. 6

on a middle floor offers a degree of protection that makes it unnecessary to back vent the water closet individually, provided the possible discharge does not exceed that from one bathroom group plus a kitchen sink or 10½ fixture units.

"In cases where the possible discharge from floors above exceeds 10½ fixture units, it is necessary to back-vent each separate branch individually, including water closet branches, on a middle floor."

We fully believe that these conclusions, offered through the medium of such high authority as the Hoover commission, constitute one of the principal reasons for the development of these multiple or crowfoot fittings, which in turn are responsible for so greatly increasing the range of bathroom connections.

The conclusions named above, which are so favorable to the use of crowfoot fittings, are based in part on tests, which are mentioned on page 154 of the Hoover report, and which we quote in part as follows:

"The plan of connecting the bath and basin common waste into a fitting below the water closet fitting was also tested. . . . These results, verified by later pressure measurements in similar positions on a straight 3-in. stack, indicate that the waste pipe connection to the stack was made near the point of maximum aspirating effect of the water closet discharge. . . . The employment of a side inlet termed a crowfoot fitting was suggested by the plumbing committee as a practical means of protecting fixture traps from the aspirating effects produced by water closets on the same floor. . . . The special advantages of the crowfoot fitting for small-house construction will become evident from the applications made in the tests. Pressure measurements made in the complete plumbing test installations and in straight 3-in. stacks at points on the stack above the inlet through which water was introduced into the stack, showed no measurable effects when the stack top was open. At the same level as the inflow, only very slight suctions or back pressures were produced. The use of the crowfoot fitting affords almost complete protection from aspirating effects produced by the discharge of fixtures on the same floor."

Figs. 3 and 4 will serve to show the value of these so-called crowfoot fittings. Fig. 3 shows a common layout for double bathroom connections when common fittings are used. Fig. 4 shows the use of one of the modern crowfoot fittings. A comparison of the two sets of connections will show the work of Fig. 4 far more simple. The crowfoot fitting costs much more than the

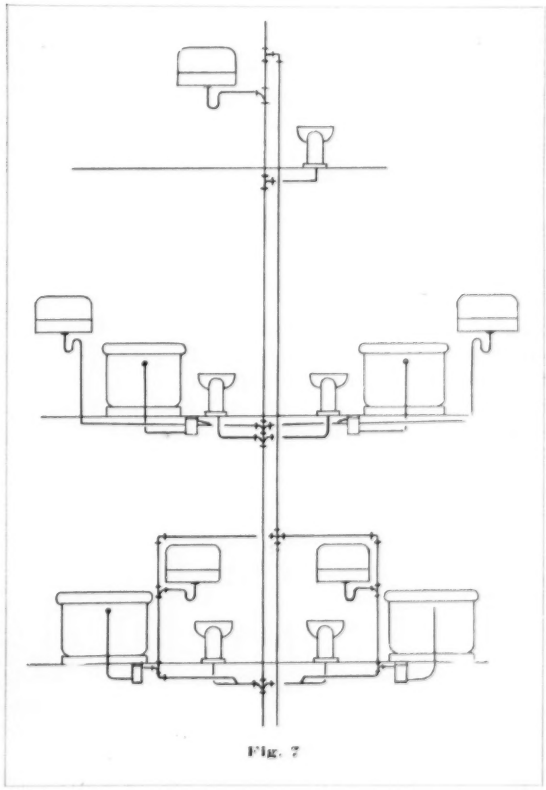


Fig. 7

common waste fitting, but it accomplishes so much more that the difference in cost will generally not be a consideration.

Probably the use of this type of fitting is of greatest value and effects the greatest economy in cost of installation on double bathroom installations, where two bathrooms back up to each other.

We should call attention to the fact that Figs. 3 and 4

and all other illustrations used in this article, except Figs. 1 and 2, are taken from pilot drawings use in cities which employ the pilot drawing as an important part of their general program for the enforcement of plumbing regulations.

Figs. 5 and 6 illustrate two additional layouts for double bathroom connections, which also may be compared with Fig. 4.

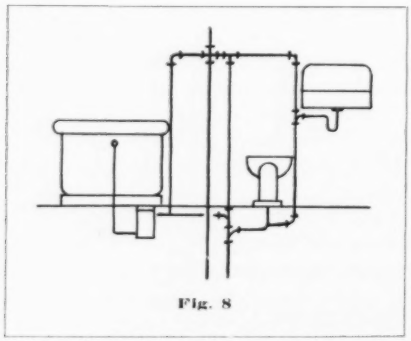


Fig. 8

Fig. 5 is taken from the pilot drawing of a city which does not require the venting of water closets.

In Fig. 6 it is of course the better and safer practice to connect the bath wastes above the water closet waste connections, as the aspirating effect on the bath traps is of much less effect as here connected. Some will object that this method of venting wet-vents the two water closets. There seems to be no settled standard practice regarding the use or disuse of wet vents. Personally we are favorable to the method shown in Fig. 6. We believe that both the water closets and the bathtubs should be vented so long as they are not top floor fixtures, and that the employment of a vent common to the four fixtures will not prove detrimental to any one of them. A point to be taken into account in this connection is that the water closet and bathtub are not very often going to be used at the same time, and practically never discharged at the same instant. Therefore there will not occur a time when the same pipe will be used at

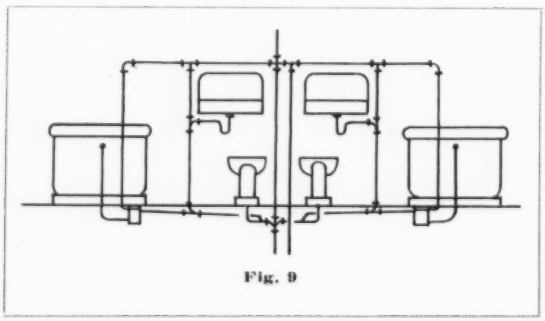


Fig. 9

the same instant as both waste and vent. This fact, in our estimation, is the big reason for arguing in favor of the use of wet vents.

One of these pilot drawings which we referred to in connection with the writing of this article, illustrates the following ordinance, which is to be found in its plumbing code: "No fixture discharging into a soil or waste stack which extends in undiminished size through the roof, need be back-vented where the aggregate area of all branches discharging into the stack above the fixture does not exceed the area of the stack, or where a closet does not discharge into the stack more than 20 ft. above said fixture, provided the fixture is within the following distance: 1¼-in. waste pipe, 3 ft.; 1½-in. waste pipe, 4 ft.; 2-in. waste pipe, 6 ft.; 4-in. soil pipe, 8 ft."

Fig. 7 shows how such a regulation as this affects the

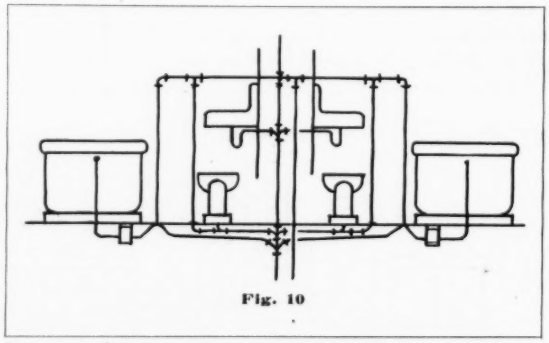


Fig. 10

venting of the plumbing system. Under the terms of this ordinance, none of the second floor fixtures require venting.

Many plumbing codes show that the impression prevails to a considerable extent that fixtures under the general conditions of those in Fig. 7 located on the middle floor, are not subject to siphonic influence, and therefore require no venting. The experiments carried on under the Hoover plumbing commission do not bear this view out. We have already quoted two of the seven conclusions shown on page 176 of the Hoover report, and in connection with our present discussion, we want to quote a third conclusion, as follows:

"It is necessary to back vent individually or in groups all small branch waste lines connecting directly into the stack below a water closet on the same stack, to protect fully the seals of traps on such branches."

In studying pilot drawings we have noted a surprising

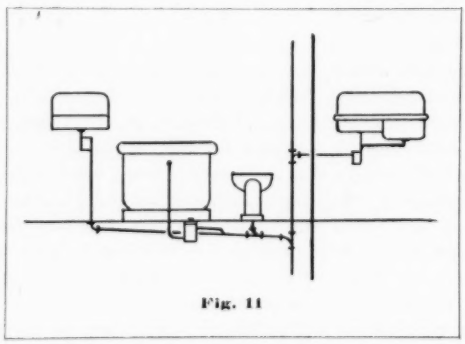


Fig. 11

amount of poor practice relating to the venting of bathroom fixtures on top floors. What we refer to especially is the fact that even today, when so much has been said concerning the need of simplifying plumbing installations wherever possible without harming efficiency, we find many plumbing codes demanding full venting for every fixture on the entire system. In our opinion, this

(Continued on Page 134)

When all of the water entering a tee flows out of either branch, the friction in the tee is at a minimum. This friction increases greatly as the amount of water diverted through the branch is reduced. Charts give accurate determination of friction for various percentages of water diverted through branches of 1-in. cast iron tee. These are based on tests reported by F. E. Giesecke and W. H. Badgett at the summer meeting of the A. S. H. & V. E.

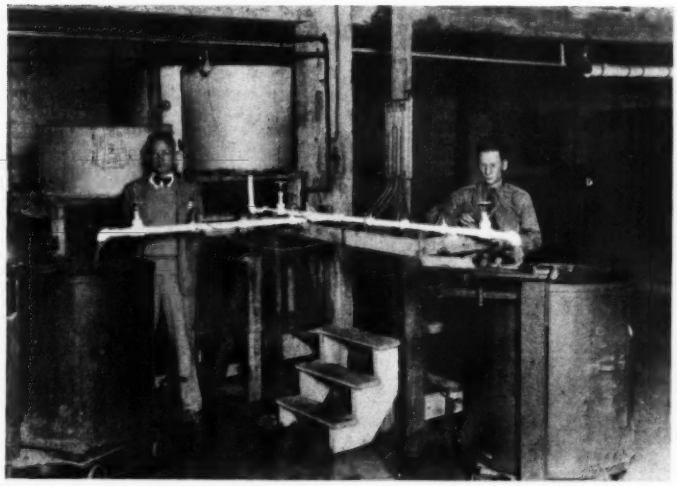


Fig. 1—Testing Friction

Friction in Tees Exhibits Curious Variation

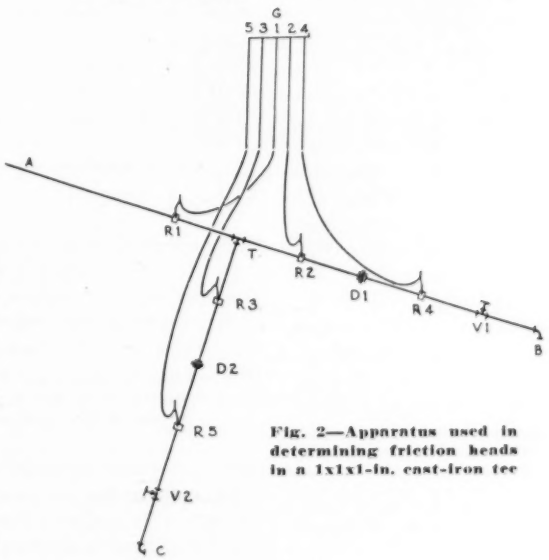


Fig. 2—Apparatus used in determining friction heads in a 1x1x1-in. cast-iron tee

THE object of this investigation was to determine the friction heads in a one-inch standard cast-iron tee when 70 F. water was flowing through in the several possible directions.

Apparatus

The apparatus used for the investigation is shown in Figs. 1 and 2. In Fig. 2, *T* represents the tee under investigation and *AT*, *TB* and *TC* represent sections of standard black-iron pipe each about 5 ft. long. The three pipe sections were cut from the same piece of pipe in order that the diameters of the three sections might be as nearly equal as possible. *R1*, *R2*, *R3*, *R4* and *R5*

represent piezometer rings, to determine the pressure heads at their respective locations. *G1, G2, G3, G4* and *G5* represent glass tubes for obtaining the differences between the pressure heads at the several piezometer rings. *D1* and *D2* represent ½-in. circular diaphragm

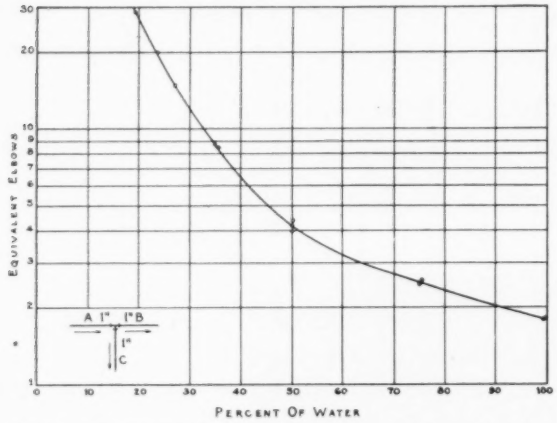


Fig. 3—The friction head in a 1x1x1-in. cast-iron tee when water enters at A and a portion is discharged at C, in terms of the friction head of an elbow at C

orifices for determining the quantity of water flowing in the respective pipe sections. *V1* and *V2* represent gate valves for regulating the flow of water through the two respective pipe sections.

During a test, water entered the apparatus at *A* (Fig. 2) and was discharged at *B* and at *C*, the relative quantities flowing in the two directions being regulated so that the quantity flowing out at *B* varied from zero to 100 per cent, while the quantity flowing out at *C* varied from 100 per cent to zero. Provisions were made by which the water flowing through the apparatus was maintained at a mean temperature of 70 F with a maximum variation from that mean of less than one degree.

Fig. 1 shows a photograph of the apparatus while water was flowing so that 82 per cent was being discharged at *B* and 18 per cent at *C*. For this particular test a small quantity of red dye was added to the water to color it so that the elevations of the water in the glass tubes (*G*) could easily be seen in the photograph.

Calculation of Friction and Velocity Heads

The friction head for this case was calculated as follows: The difference in the elevations of the water in *G1* and *G3* (0.195 in.) was the loss in pressure head while the water was flowing from *R1* to *R3*. The difference in the elevations of the water in *G3* and *G5* (0.435 in.) was the loss of head while the water was flowing from *R3* to *R5* and through the orifice *D2*. From the calibration of this orifice, referred to in the paper Loss of Head in Submerged Orifices, by F. E. Giesecke,[3] it was found that the velocity of the water in the pipe section *TC* was 3.4 in. per second. However, in order to check this result, the water flowing through the pipe section *TC* was weighed, and the velocity determined from this weight was found to be 3.33 in. per second. In a similar manner, the velocity of the water flowing through the pipe section *TB* was found to be 15.6 in. per second. The velocity in the pipe section *AT* was therefore equal to 3.4 in. plus 15.6 in., or 19.0 in. per second.

The velocity heads for the pipe sections *AT* and *TC* were then calculated by the formula

$$h = \frac{v^2}{2g}$$

and found to be 0.015 and 0.466 in., respectively. The difference between these two velocity heads (0.451 in.) was the loss in velocity head while the water was flowing from *R1* to *R3*. Adding the loss of velocity head (0.451) to the loss of pressure head (0.195), the total loss of head was found to be 0.646 in. This loss of head may be divided into three parts: The friction head in the pipe section *R1-T*, the friction head in the tee, and the friction head in the pipe section *T-R3*.

The two pipe friction heads were calculated by the formula

$$h = 0.00685 \frac{v^{1.77}}{d^{1.275}} \text{ (feet of water)}^4$$

and found to be 0.177 in. and 0.008 in., respectively. Subtracting these two friction heads from the total loss of head, the friction head in the tee was found to be 0.461 in. Dividing this by the friction head for a 1-in. standard cast-iron elbow (0.014 in.) calculated by the formula

$$h = 0.0141 \frac{v^{1.90}}{d^{0.20}} \text{ (feet of water)}^4$$

the friction head in the tee was found to be equivalent to 33 elbows. For this case, 18 per cent of the water flowing in the section *AT* was diverted at right angles through the tee into the section *TC* and the velocity of the water in this section was 3.4 in. per second. This

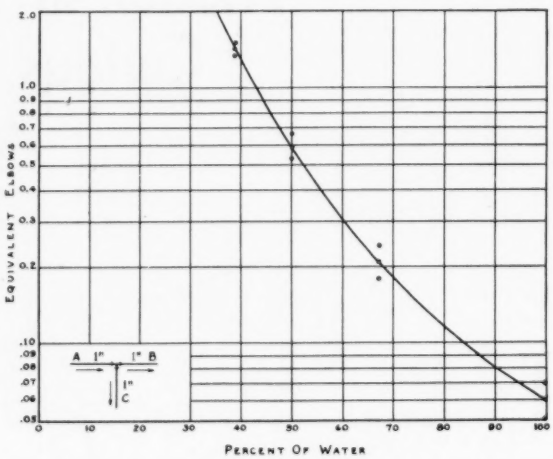


Fig. 4—The friction head in a 1x1x1-in. cast-iron tee when water enters at A and a portion is discharged at B, in terms of the friction head of an elbow at B

value (33 elbow equivalents) was recorded in Fig. 3.

By varying the percentage of water flowing through the section *TC*, other values were found and recorded in Fig. 3 and a curve drawn through the points. From this

This article consists of excerpts from a paper read at the semi-annual meeting of the American Society of Heating and Ventilating Engineers at Swampscott, Mass., June, 1931. Paper and illustrations copyright, 1931, American Society of Heating and Ventilating Engineers.

curve it appears that when 100 per cent of the water is flowing through the pipe *TC*, the friction head in the tee is equivalent to about 1.8 elbows and that the number of elbow equivalents increases to about 27 when the proportion of water diverted at right angles is decreased from 100 per cent to 20 per cent. It also appears that the number of elbow equivalents approaches infinity as the percentage of water flowing through the section *TC* approaches zero.

The method just described was also used in finding the friction head for the water flowing straight through the tee. The results for this case were recorded in

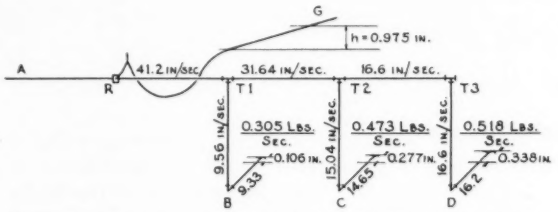


Fig. 5—Apparatus used to check the friction heads in tees as determined by the apparatus shown in Figs. 1 and 2

Fig. 4 and the corresponding curve drawn. It appears from this curve that when 100 per cent of the water is flowing straight through the tee the friction head is equivalent to about 0.06 elbow, and that the elbow equivalents are increased to about 14 when the quantity of water flowing straight through the tee is decreased to 20 per cent of that flowing into the tee. In both cases the elbow equivalent friction head is based on the velocity of the water in the pipe through which the water is discharged from the tee.

Check of Results

Since the results found in this investigation differed materially from those which had been expected, it was decided to check them with the apparatus shown in Figs. 5 and 6. In Fig. 5, *T1*, *T2*, and *T3* represent the three 1 x 1 x 1-in. tees under investigation; *A-T1*, a section of pipe 2 ft. long; *T1-T2*, *T2-T3*, *T1-B*, *T2-C*, and *T3-D*, sections of pipe 1 ft. long; *B*, *C*, and *D*, standard 1-in. cast-iron elbows with 1 x 4-in. nipples looking up and reamed to an internal diameter of 1.0625 in.; *R*, a piezometer ring, and *G*, an inclined glass manometer tube with a slope of 1 on 10. The point *O* is the zero point on the manometer tube and is at the same level as the upper ends of the three nipples at *B*, *C*, and *D*.

During a test, the water entered the apparatus at *A* and escaped at *B*, *C*, and *D*, discharging into three separate weighing tanks. The quantities of water escaping from the three nipples were 0.305, 0.473, and 0.518 lb per second, respectively, from which the velocity heads at discharge, the velocities in the six pipe sections, and the velocity head at *R* were calculated. The pressure head (*h*) at *R* was read in the glass tube. Having these data, the friction heads in the three circuits were calculated.

For the data represented in Fig. 5, the friction heads were as follows: Path *R-T1-B* = 3.088 in.; path *R-T2-C* = 2.913 in.; and path *R-T3-D* = 2.857 in. These three values were determined by deducting the sum of the velocity head, pressure head, and elevation head at the discharge from the sum of those heads at *R*.

The friction head in the path *R-T1-B* includes

Friction in pipe *R-T1*	= 0.700
Friction in pipe *T1-B*	= 0.052
Friction in elbow *B*	= 0.107
Friction in nipple *B*	= 0.017
Total	= 0.876

This leaves for the friction in tee *T1* 3.088 minus 0.876, or 2.212 in.

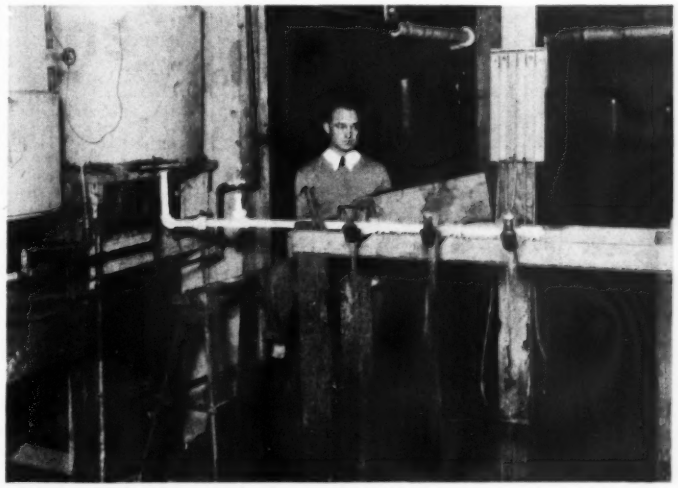
The friction in tee *T1* is therefore 20.6 times as large as that in elbow *B*. In this case 23.3 per cent of the water is diverted at right angles in the tee so the result checks well with the ratio 20 shown by the curve of Fig. 3.

The friction head in the path *R-T2-C* includes

Friction in pipe *R-T1*	= 0.700
Friction in tee *T1*	= 0.220
Friction in pipe *T1-T2*	= 0.436
Friction in pipe *T2-C*	= 0.117
Friction in elbow *C*	= 0.264
Friction in nipple *C*	= 0.037
Total	= 1.774

This leaves for the friction in tee *T2* 2.913 minus 1.774, or 1.139 in.

The friction in tee *T2* is therefore 4.34 times as large as that in elbow *C*. In this case 48.7 per cent of the water is diverted at right angles in the tee so the result checks well with the ratio 4.76 shown in curve, Fig. 3.



Apparatus used to check the friction heads in tees as determined by the apparatus shown in Figs. 1 and 2

The friction in the path *R-T3-D* includes

Friction in pipe *R-T1*	= 0.700
Friction in tee *T1*	= 0.220
Friction in pipe *T1-T2*	= 0.436
Friction in tee *T2*	= 0.310
Friction in pipe *T2-T3*	= 0.137
Friction in pipe *T3-D*	= 0.137
Friction in elbow *D*	= 0.310
Friction in nipple *D*	= 0.047
Total	= 2.297

(Continued on Page 128)

One authority says that the relief vent should be placed on the cold water supply to the range boiler and water heater. A second authority says that it should be placed on the hot water side of the storage tank. Their reasons are given in this article. Every contractor who installs water heating systems will find this discussion intensely interesting and practical

Where Shall the Relief Vent Be Placed?

By HARRY S. DAVIDSON

IN the May 16th issue of DOMESTIC ENGINEERING there appeared an article by S. M. Barr entitled, "How to Guard Against Excessive Pressures in Domestic Water Heating Systems." This article has called forth the following exceptions to one of the practices which the article upholds:

"I note your article entitled "How to Guard Against Excessive Pressures in Domestic Water Heating Systems" by S. M. Barr, on page 31 of the May 16th issue.

"I note that in figure five you show and recommend placing the safety relief valve on the hot water line running to the fixtures. I take issue against this recommendation and believe it is all wrong, and that there should be a correction. I am thoroughly convinced that the relief valve should be placed on the cold water supply line going to the heater, or tank, and in the case of smaller heaters where the cold water supply is fed directly into the heater, it should also be placed on the cold water supply line.

"I have had many occasions to inspect relief valves on domestic hot water systems where we have had trouble with heaters cracking, and there has always been a question in the mind of the trade or the owner as to the cause, and invariably a complaint is registered by the trade or owner that the heater is defective in some way.

"This is probably true in a small number of cases, but there are so many things to encounter in the abuse that a heater receives, such as the shock from cold water entering the heater when there is a hot fire in it, water hammer and excessive pressures, and invariably you will find that when the relief valve is placed on the hot water line excessive corrosion takes place around the seat of the valve, and the proper care and servicing is not given the relief valve at the time the heaters are cleaned out and serviced, and the valve is quite apt to stick. A very slight corrosion around the seat of a relief valve will require an excessive pressure to break the seal.

"We have found in many cases where heaters have been cracked that upon taking the relief valve off they function O. K., although there is quite a little sediment and corrosion inside the valve. But we have no doubt that the valve originally stuck, and that the shock when the heater cracked, and the release of this pressure, had its effect on the valve and caused the seal to break in the seat, releasing this sticking condition.

"It is our policy to recommend to all trade that the relief valve be placed on the cold water inlet line to the hot water supply system, and also that the valve should be taken off and cleaned out periodically."

The particular use of relief valve to which exception

"There are so many things encountered in the abuse that a water heater receives that it is our policy to recommend that the relief valve be placed on the cold water inlet line to the hot water supply system. Also, we recommend that the valve be taken off and cleaned periodically."

is taken appears in Fig. 5 of the article mentioned. It is reproduced here in our Fig. 1. The practice that is advocated is shown in Fig. 2.

The letter which takes so strong a stand against Mr. Barr's location for this relief valve is written by a man of unquestioned authority, whose judgment we greatly respect.

How can Mr. Barr and this authority both be right?

In trying to handle this question we want to say at the outset that there seem to be two diametrically opposing opinions as to the proper location for the relief valve on a hot water supply boiler.

The writer strongly favors the location Mr. Barr has chosen, and many will agree with him.

In another article by this same writer, which appeared in the May 2d issue of DOMESTIC ENGINEERING, he went much more into detail concerning the proper location for the relief valve than in the article which has been criticised. In that article appears on page 67 the following statement: "The Commission on Plumbing Laws for Massachusetts some months ago asked Chetwood Smith of Boston for recommendations." The The recommendations alluded to are then given, and among them is the following: "The excessive temperature caused by overheating the water is the greatest danger, and therefore demands the most careful consideration, for with 100 lb. water pressure the temperature of the water can be raised approximately to 338 deg. Fahr., and should a 30-gallon vessel rupture under these conditions the explosion in energy would equal that of one and one-half pounds of nitro-glycerine. The water in the top of the vessel is the hottest and the most dangerous. The only safe means of relief is therefore to allow the hottest water to run to waste when it reaches a temperature between 212 deg. Fahr. and 220 deg. Fahr. To accomplish this, the valve must be installed either on the uppermost part of the vessel or on the hot water service line not more than six inches vertically from the vessel, without horizontal piping between the valve and the vessel, and with not less than ¾-in. brass connections between the valve and the vessel. A temperature relief valve in any other location is only a makeshift and therefore only partially protects the vessel. When a temperature relief valve is installed on the cold water line, none of the water in the vessel can pass through it, and its action in operation is the same as if you opened a cold water faucet in the building. Thus installed it is useless."

We recall that at one of the Massachusetts plumbing conferences held at Massachusetts Institute of Technology in Cambridge, this question of location of relief valve came up in connection with a lecture by Professor James Holt of M. I. T., and at that time he took a strong stand for its location on the hot water line or at the top of the boiler, rather than on the cold water supply line. This stand was almost unanimously supported in the general discussion by the conference, which followed.

In a published article entitled "Protecting the Hot Water Tank," Professor Holt makes the following statements: "A much discussed question is the proper location of the safety devices. The temperature relief should be placed in the tank itself and close to the top, to prevent any of the water being heated above 212 deg. Fahr. The reason for placing it close to the top is that some heaters deliver to the tank very hot water, in the vicinity of 240 to 250 deg. Fahr., and you may have water at a dangerous temperature at the top, and cold water at the bottom. . . .

"The preferable place for all reliefs is in the tank itself and not in the piping, to avoid trouble by anyone carelessly placing valves between the reliefs and the tank."

We are fully aware that many questions which pertain to plumbing operations are viewed from two entirely opposed angles. Take the main trap for instance,—there are many who support its use vigorously, and there are many also who oppose its use just as vigorously. This seems to be the situation concerning the proper location of relief valves. The stand taken by Mr. Barr in his articles, and the opposite stand taken in the letter on which this article is based, made a deep impression on us, and in our effort to see what available expert judgment had to offer on the subject, we laid the entire subject before one of the country's leading steam boiler insurance and inspection companies. Their field of work naturally gives them a vast amount of experience in the application of protective measures to hot water supply tanks, and we therefore felt that their judgment would be unprejudiced and expert. We were referred to two of their engineers, and without qualification they favored the use of the relief valve on the hot water

(Continued on Page 122)

"When the valve is located where the water is hottest, every time it operates it discharges the hottest water there is in the tank and this is replaced by a like amount of cold water. This has a cooling effect which the other location cannot possibly provide."

MODERN HEATING MAKES

EVERY great selling movement has identified itself with some phrase that sums up the sales story of that movement. Every war has had its battle cry. Even the movies have their theme songs as do the radio programs we listen to every night. "The Perfect Song" is as much a part of "Amos and Andy" as the two comedians themselves. So the Remodeling Movement in plumbing and heating should have its phrases, its battle cry, or, if you will, its theme songs. It should have its slogans—a few words that express in a simple but easily remembered and striking manner, the whole idea of remodeling.

A few weeks ago, DOMESTIC ENGINEERING formulated such a slogan for the plumbing branch of our industry. Today, it announces a slogan to help sell heating to the remodeling market. "Modern Heating Makes Modern Homes," is the companion slogan to "The Difference Between an Old House and a New One Is Plumbing." Both of these slogans have been printed upon attractive orange window posters, 25 in. wide by 4½ in. deep. The plumbing slogan in such form has been requested by and distributed to contractors, wholesalers and manufacturers everywhere. More than 18,000 of them have been sent out to date.

They are to be seen in the windows, show rooms, on the trucks and automobiles of wide-awake contractors everywhere. Wholesalers, too, have been giving them much prominence. Letterheads, billheads, envelopes and other stationery are adorned with the slogan. Manufacturers have featured and will continue to feature it in their advertising. In a word, the plumbing field has gone out to put this thought over in a big way with apartment building and home owners everywhere.

Property owners can not but accept the truth of the simple statement this slogan makes. And they will as readily accept the fact, "Modern Heating Makes Modern Homes." A modern heating system will make any apartment or any home more comfortable, mode modern, more easily rented or sold.

The plumbing and heating contractor who takes this slogan and gets behind it as he got behind the plumbing slogan will be tying in with an industry-wide "battle cry." He will have identified himself as a plumbing and heating remodeling sales agency. He will have taken a big step toward "bringing to a head" the public consciousness, the public demand for new and better plumbing and heating equipment.

Both slogans have been printed on identical window posters. Contractors and wholesalers and manufacturers everywhere should give them all of the prominence, all of the publicity that they can. You are at liberty to use the phraseology of either or both of these posters on your letterheads, billheads, envelopes or in any advertising that you are doing.

You may have the new heating poster free by sending only a stamped, addressed envelope to DOMESTIC ENGINEERING.

The heating season is approaching its crest now. Repairs, replacements, additions should be made now. This poster will help you establish yourself as a remodeling contractor. It will bring attention to your show windows, your show rooms, your trucks or automobiles.

MODERN HOMES

REMODEL NOW!

IT'S only a short time ago since the old gentleman pouring fuel into the stove also drove a "horseless carriage" that sputtered and jerked itself into a convulsion of ten miles an hour.

Today, his son drives an automobile that is as swift, as silent, as free from attention as the heating system in his home can be. You don't see any automobiles of ten or twelve years ago and, very shortly, you won't see any heating systems that are as out of date or unreliable. "Modern Heating Makes Modern Homes" is the idea to sell NOW.

Sell it to any apartment or home that has any kind of heating system that is not as good as the best you can offer right now.

Just as often as you use it, just so often will you help sell heating and help yourself to more profits.

These posters, together with the Remodeling Charts and Guide to Remodeling Sales, form a mighty complete sales kit. If you are not familiar with them, write DOMESTIC ENGINEERING for full details. Use the charts for checking plumbing and heating systems for needed repairs and replacements. Plan your selling effort along the lines laid down in the Guide. You can have your share of the remodeling profits just as well as not.

Editorials

The World Is Ready

DON'T let us, because France held up the moratorium negotiations for a week or so of bargaining, overlook the immediate response made to President Hoover's suggestion. It is not important to this discussion whether one believes the moratorium to be sound or not—it has been accepted, and the present German internal tangle will be straightened out.

What is important is that the world reacted so promptly to it. That reaction indicates that the requisites for economic recovery are there, and that by now it is, so far as this country is concerned, merely the super-caution on all hands that is keeping us from commencing the climb back to more normal levels of business of all kinds.

We are not overlooking unemployment, or low totals in steel and other industries. These are now the results of that super-caution that is characteristic of the moment.

Think this over: In 1922 there were in the banks of this country 17.5 billions of dollars in savings, credited to 30.5 millions of depositors. In 1930 there were 28.5 billions of dollars in savings, for 53 millions of depositors, and savings had changed from 5.5 per cent to about 8 per cent of the estimated wealth of the country.

It is true that some banks have failed. But they account for a very small portion of the total savings. What must come now is a change in viewpoint on the part of those who own those savings. We do not mean that this change can be brought about by artificial means. But the moment is approaching when, what with the lapse of time since October of 1929, and the economical spending during a time when we are using up various commodities, and the fact that there is already improvement in some lines, together perhaps with a factor not yet clearly to be seen—the moment is approaching when these things will bring savings and earnings on the market for things needed and, gradually, for luxuries.

The day for "selling short" has passed. This editorial is no attempt to arouse a false optimism. But it is hoped that with some recitation of the things that are in the favor of recovery in the not too distant future, there will be a willingness to put a little more sales drive back of the plumbing and heating business. The contractor who, today, is back of the "Modernize Now" campaign, who is pointing out that "The difference between an old house and a new one is plumbing," and that "Modern heating makes modern homes" will be getting remodeling business. And what is perhaps more important, he will be putting himself out in front now—and people will remember him when the time comes for those new homes and other buildings that are now being held up for one reason or another. He will be "out in front" now when others are over-cautious about their sales promotion activities.

The Utility Situation

THE situation as between the master plumber and heating contractor, and the local gas company, as it has taken shape since the Milwaukee convention, is one that deserves prompt action on the part of local groups.

It will be remembered that a representative of the American Gas Association, speaking to the national convention, outlined the six principles upon which the members of that association are prepared to co-operate with contractors all over the country.

It was urged upon the members in attendance that, immediately upon their return, they form committees to call upon their local gas company to place these principles before its chief executive. The American Gas Association representatives stressed that point—see the president of the company, he advised, not a sub-executive.

It was then promised that, if co-operation was not forthcoming, the matter should be referred to the national office of the master plumbers' association. It would be taken up with the national executives of the American Gas Association, and it was implied at the meeting that fairly vigorous action might be expected. In fact, it was said from the platform that a number of sales executives of utilities had been asked to resign because they were not prompt enough in their adherence to the principles outlined.

From this point onward, the initiative lies with the local groups of master plumbers. They are promised a very reasonable measure of co-operation on the part of the executives of the utility association; and their own national executives, having worked out this agreement, will be behind any local group that is trying to adjust matters in accordance with the principles that have been accepted by both sides.

PLUMBING & HEATING MERCHANDISING

A Review of Retail Store Methods

PART V
Section 3

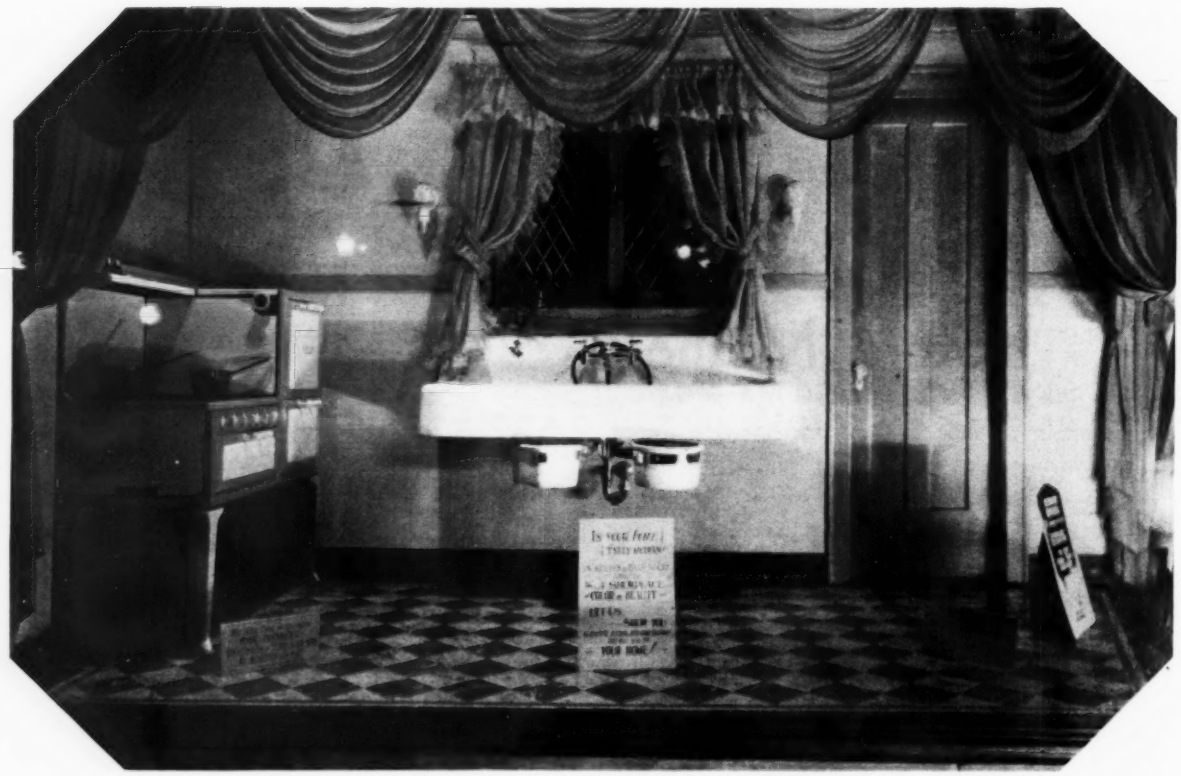
» » » » » »

This third section in the review of retail store merchandising goes into the important subject of

The Formal Opening

How To Merchandise

The "Formal Opening" of the New Store



This attractive window display was completely arranged back of a winter front before the store was thrown open to the public

THIS is Section 3 of Part V of our review of merchandising methods in the plumbing and heating field, as they have been exhibited in stories carried in these "Plumbing and Heating Merchandising" pages over the past four years. We have, in the two previous sections of Part V of the review, touched on such matters as store location, some preliminaries of lighting and display, the design of store fronts, etc.

We now go on to show how plumbing and heating contractors have made very effective use of their stores in their selling programs. It is essential that a contractor remember that his store is as much a part of his selling and merchandising plan, as the newspaper advertisements or the sales letters he uses. It is, in fact, an advertisement; and the skill with which he uses it will determine the value it is to him.

After all, the maintenance of a retail store costs money. We do not think, nor do we advise, that every contractor should immediately open up a retail store and stock it with fixtures. There is a proper time to do that—to be decided by each contractor for himself. But once the store has been established, and rent is being paid, it should be used to the fullest extent possible. From the very moment of its opening, it should actively be considered a part of the sales plan, and included in that plan. When a new campaign of any kind is being undertaken, the store should automatically be considered to see just what part it can be made to play in the campaign.

The Value of the Store

It is generally admitted that the store in the plumbing and heating field can not be expected to sell merchandise, to the extent that the average retail store, handling units of small purchasing price, will sell. The unit cost in our field is too large for what is called "drop-in" trade. But that is as true of a number of other products — pianos, automobiles, etc. The store still has an important part to play as the headquarters for service, and for such products as go into the plumbing and heating in the home; as the indication of just what type of business is run there. That is why appearances were so strongly

stressed by the contractors whose experiences were described in the first two sections of this part of the merchandising review. All agree that the store builds prestige; it is the sign of a successful and continuing business; and the better it looks, the better the impression.

Of course, there are sales made in the store—and only because the store is there. Some few contractors have made their stores pay for themselves. But the average experience is probably that of the contractor who describes how one of the ladies of his community came in to make some comparisons of prices between what he had on display, and the fixtures

ANNOUNCING

The Opening of an Exhibit of

Modern Plumbing Fixtures

—and—

Plumbing Accessories

This Display Room offers to the community the advantage of inspecting before selecting. We sell only the best of materials. Every item is inspected by us before installation and carries our guarantee, back of which is our reputation of having served this community faithfully for the past eight years.

May We Serve Your Future Plumbing Needs?

OUR AIM IS TO GIVE PROMPT SERVICE TO ALL REPAIR WORK

Consult us regarding the extra Bath Room or Toilet you may need in your home.

To contractors and realtors we extend to you a cordial welcome to make use of this exhibit and display room, and urge you to bring your prospects here to make selections. You are not obligated in any way whatever when we estimate your

PLUMBING and HEATING

OPENING DATE

SATURDAY, FEB. 23, 1929

FREE!

To the member of each family visiting our store on the above date we will present a useful article for the home. Be sure to get yours! A visit to our store will reveal many articles you may never have thought of buying from your plumber.

BY WATCHING OUR WINDOW DISPLAYS THE LATEST IDEAS IN PLUMBING WILL BE BROUGHT TO YOU

Mark your shopping list to

STOP and SHOP at the PLUMBING SHOP

This store will be open Saturday evenings until 8:30 p. m. We would appreciate being of service to you.

C. L. BISHOP

Plumbing and Heating

PHONE 3694 721 PEARSON ST., Des Plaines, Ill.

she intended to order from a mail order catalog.

As this contractor says: "It was the real thing against pictures; and price became a secondary matter." That particular sale was made. Then, as the lady was leaving the store, she indicated some interest in a washing machine on display. It was demonstrated; it was talked over with the lady's husband; and in due time that sale was also made. All this, of course, because the store was there. When this lady wanted to compare mail order merchandise and prices, I find it possible to point out the advantages of better fixtures than those specified, and so make a better sale."

These examples might be multiplied from the stories we have published. But the purpose of including them here is to indicate that, while we can't expect a plumbing and heating store to sell as many bath tubs

This is the follow-up advertisement, to secure further visitors to the new "plumbing exhibit"

Launching the New Store

We said above that from the first moment that the store is established, it should be regarded as a sales instrument. The pages of this part of our review of store merchandising are given over to the methods plumbing and heating contractors have followed in calling the attention of their communities to the opening of a new store. Some times this has been the first store set up by the contractor—at other times it has been the opening of a new store by an old and well-known firm.

Why Be Ashamed of Your Bathroom?
The Modern Bath Room of today is a thing of color and beauty.
A new seat or colored shower curtain can be installed in a jiffy.
If you failed to visit our new
Plumbing Exhibit
on opening day you missed seeing many things of interest to the home owner.
When You Need a Plumber Call
3694
This store will be open
Saturday Evening
until 8:30
Mark on your shopping list to
STOP and SHOP
at the PLUMBING SHOP
C. L. BISHOP—Plumbing & Heating
721 Pearson Street
Des Plaines, Ill.

she thought of that store. It was not in the best location in town either—in fact, it's in a rather out-of-the-way location. But she remembered it.

Then there is the use of the display where a prospect drops in, more or less decided upon the purchase of, say, one fixture. This same contractor cites instances where, following the expression of interest in a new bath tub, he has been able to sell the complete bathroom set-up. "Even on contract work," he says, "the customer wants to see what he's going to get. It's a lot better to show samples than pictures. And very often "over the counter" as a drug store will sell tubes of tooth paste, the store still has its very important place in the sale of plumbing and heating materials. It should never be taken for granted; if a drive is in progress for the sale of any piece of equipment handled, the store should be brought in line with that sales drive, its windows and the display so arranged as to call attention to the product and the sales drive. When this type of co-ordination is brought into play, the store will be helping to pay for its share of the overhead expense.

In either case, the alert contractor has made good use of the occasion. It is a legitimate piece of news to the community; and properly handled in advertising can be made to make a number of new friends for the firm—even can be made productive of sales during the official "opening" period.

When, for example, C. L. Bishop of Des Plaines, Ill., a suburb of Chicago, opened his new plumbing shop, he took generous space in his local newspaper to announce that fact, and to invite the public to visit the store on the Saturday on which it was

Eleventh Anniversary

Arthur J. F. Lowe & Son

1217 East 55th Street

Hyde Park's Leading Plumbers

Thursday, Friday and Saturday June 6th, 7th and 8th

We will celebrate the opening of our beautifully appointed new display and salesroom, where we are showing a complete line of the newest and ultra-modern effects in plumbing fixtures—featuring the latest pastel color schemes in fixtures, shower curtains and drapes.

A cordial invitation is extended to our patrons and the general public to visit us. Store open Thursday, Friday and Saturday, June 6th, 7th and 8th, from 8 A. M. to 9 P. M.

ARTHUR J. F. LOWE & SON

Phones Midway 0782-0783 **1217 East 55th Street**

opened. The entire opening of this new place of business was very well-managed.

In back of a boarded front, the complete preparation of the display room and of the particularly beautiful window display went on. The morning of the opening day this front was removed. The announcement of the opening is reproduced, and that opening was an unqualified success. From 7:30 in the morning until 10:30 that night the store was crowded. It was located on a street leading into the main shopping center, and while Mr. Bishop had hopes for the success of his formal opening, he had had no idea of the interest the public would show in the event.

In announcing the opening of the store, Mr. Bishop played on the thought that it was an "exhibit" of plumbing materials, where a client might have "the advantage of inspecting before selecting." The advertisement carried also an announcement of the general policy of the store.

As an inducement, a "useful article" was offered as a souvenir. It was a bread board, and a touch of color was added by having the crumb groove tinted blue. A generous quantity of them had been ordered, but the entire supply was exhausted by the end of the day. For the visiting contractors and realtors, Mr. Bishop had a desk cigarette lighter.

The store, during the opening day, was too crowded most of the time to secure even a complete registration of all visitors' names, but most of them did register. All that day Mr. Bishop and the young lady in the office were on the floor talking to visitors.

Having gotten off to a flying start, Mr. Bishop did not permit interest to lag immediately. We show another advertisement run in the paper during the week following the opening. It followed up the first announcement, and went into the merchandising of modern bathroom equipment. It mentioned again the "Plumbing Exhibit" and struck just the right note to make those who had not yet seen the store visit it—by indicating that if they failed to visit the exhibit they were missing something.

An Eleventh Anniversary Opening

In Chicago, the eleventh anniversary of the firm of Arthur J. F. Lowe & Son, coinciding with the opening of a new store, was made the occasion for a strong bid for visitors. In this case, the firm decided to hold a three-day opening—Thursday, Friday and Saturday—and were gratified with the response.

The show room was carefully planned to show a maximum of merchandise. Colored fixtures, colored seats and chairs, shower equipment and other accessories made an attractive display. In addition to three advertisements in the community paper, a letter, which we reproduce, was sent to six hundred of the customers for whom the firm had already done work. One hundred of these customers responded by visiting the show room, which is a very good average return on any form of direct mail effort.

On the day of the opening—to show that this type of event is not solely one of good will and friendship—seven medicine cabinets (of which there was a special and interesting display) and a dozen sets of the bathroom accessories were sold. These sales were aided by the fact that everything in the showroom was plainly and neatly priced. With eleven

ARTHUR J. F. LOWE & SON

PLUMBING AND HEATING

CHICAGO

Arthur J. F. Lowe & Son of 1217 E. 55th Street invite you to attend their 11th Anniversary.

We have prepared a new display room which will be on exhibition at that time.

We have on display some of the most recent examples of the development of SANITARY EQUIPMENT. Beautiful specimens of fine ceramics in exquisite coloring.

We shall consider it a privilege to show you our line of fixtures and accessories and also our up to date and unique system of caring for your everyday needs in plumbing repairs and service.

May we not expect a call from you on June 6th, 7th or 8th at any time during the day or evening up to 9:00 o'clock?

Looking forward to the pleasure of welcoming you at our display room, we are

Very truly yours,

A. J. F. LOWE AND SON,

Howard G. Lowe.

A BEAUTIFUL CARNATION will be given to every lady who visits this wonderful display today—and no lady will be made to feel under obligation to purchase any article shown
Announcing
AN INVITATION
To The Unveiling of Our
$20,000 DISPLAY
We extend a very cordial and sincere invitation to every man, woman and child in Macon and Middle Georgia to visit what we consider the most beautiful and elaborate display of bathroom fixtures and appliances ever to be shown in the South.
Neither the sweet-scented marble baths of the ancient Romans nor the onyx natatoriums of Greece can compare with these marvelous masterpieces of the ultra modern masters.
TODAY
10 A. M. TO 10 P. M.
Everything that could possibly go to make milady's bath a palace of loveliness and convenience, designed in the most modern treatments of the interior decorator's art will be included in this, the South's initial elaborate bathroom display: Plate glass mirrors, bathtub settings in the newest enamels and colors, medicine cabinets, radiators and cooling systems.
But featuring particularly—
A $2,500 Bathroom in Black and White With Gold Fixtures
This is a veritable fairyland bathroom. The deep rich shades of black onyx mingle with the soft white curves and delicate lines of coloring blend exquisitely with the golden fixtures to make it a vision of loveliness, a part of that wonderful dream mansion that every woman pictures in her mind.
An $600 Lavatory In Solid White China
Just picture it if you can, a solid China Lavatory, almost three times the size of the ordinary basin, with fixtures of soft silver—no description can possibly do justice to this gem alone, and one really has to see it to even get a slight idea of its tempting effectiveness.
O'PRY HEATING & PLUMBING CO.
163 Cotton Avenue
Phone 2086

different styles and colors in toilet seats, a dozen shower curtains on rods, lavatories of three colors, and several styles of medicine cabinets, all on display, it is not difficult to understand the fact that sales were possible.

Striking the Right Note

Another example of the selling possibilities comes from a store in New York state. The city is not a large one, but it has perhaps, a little better than general average in the way of income, types of homes, etc. Here is a part of the copy which appeared in the advertisement which took up a full page in the local paper:

> "I came to LeRoy in 1922 and established a plumbing and heating business on a very modest scale. From the very beginning I liked LeRoy immensely and before the end of the first year I began to dream of that day when I could have the sort of salesroom and work plant that I desired and one that would do credit to LeRoy and a growing business.
>
> "This dream is about to be realized in the opening of our new fireproof building at 35 Lake street next Saturday, and I want as many as conveniently can to join in this very happy day in my life and business experience.
>
> "We have endeavored to approach the ideal and we are very anxious to have you see it and pass judgment upon it. To you, possibly, anything associated with plumbing is a horrible nightmare. To us it is the most fascinating thing in the world, and we believe that you, too, will find it most interesting—this exploration of the many beautiful things we will have on display in our salesroom and the workshop and all of the things that enter into the planning and setting up of a plumbing or heating job.
>
> "I do very much want you to come in on Saturday, even if only for a few minutes, and see us in our new business home."

That is a piece of copy that will bear study and analysis. It has an air of sincerity—a very frank expression of the advertiser's real pleasure in the attainment of his ambition. It strikes the civic note, too — liking for the community in which he chose to establish his business.

6,200 people accepted the invitation contained in this advertisement, referring to the "fairyland bathroom"

There were sales made on this opening day, although they had not been counted on. Said the owner: "We did not plan on many sales on the opening day. We were more interested in people coming to see the goods we have for their selection. Yet we had articles, such as nine portable showers, twenty-four bath stools, twenty-four plate glass mirrors, twelve toilet seats and seven medicine cabinets. We sold nearly every one we had in stock. We sold one mangle and two twenty-by-fifty-two sinks, one in color and one in acid-resisting enamel. Also range boiler covers and gas heaters. As I said, we had not counted on very many sales on opening day, so that we were agreeably surprised.

"There were ninety-eight purchases of plumbing goods in our store out of a population of four thousand six hundred, and many telephone calls from people who were unable to come." These telephone calls are probably the very best indication that this contractor's advertising has aroused just the response he wanted it to. He made people share his pleasure in his success, and won good will with his expression of pride in his community.

A Southern Success

Macon, Ga., a little while back, was the scene of another entirely effective opening of a new plumbing and heating store. The O'Pry Heating & Plumbing Co., of that city, wound up about thirteen years of business by opening a big, splendid new store. Being merchandising minded, Mr. O'Pry made an event of the formal opening of his new establishment. It was extensively advertised in the newspapers, with an invitation to the public to visit the "Unveiling of one of the South's most modern plumbing fixture displays." The advertisements promised a complete and interesting showing of the newest things in modern plumbing fixtures.

The advertising "clicked." Something like 6,200 people came in and registered their names and addresses on the opening day. Many more came; found that they couldn't get in, so deferred their visit until later to see the showroom with its very complete display. The advertising, as will be seen from the one newspaper ad reproduced, caught the fancy of the public by its mention of "A $2,500 bathroom in black and white, with gold fixtures," and "A $600 lavatory in Solid White China."

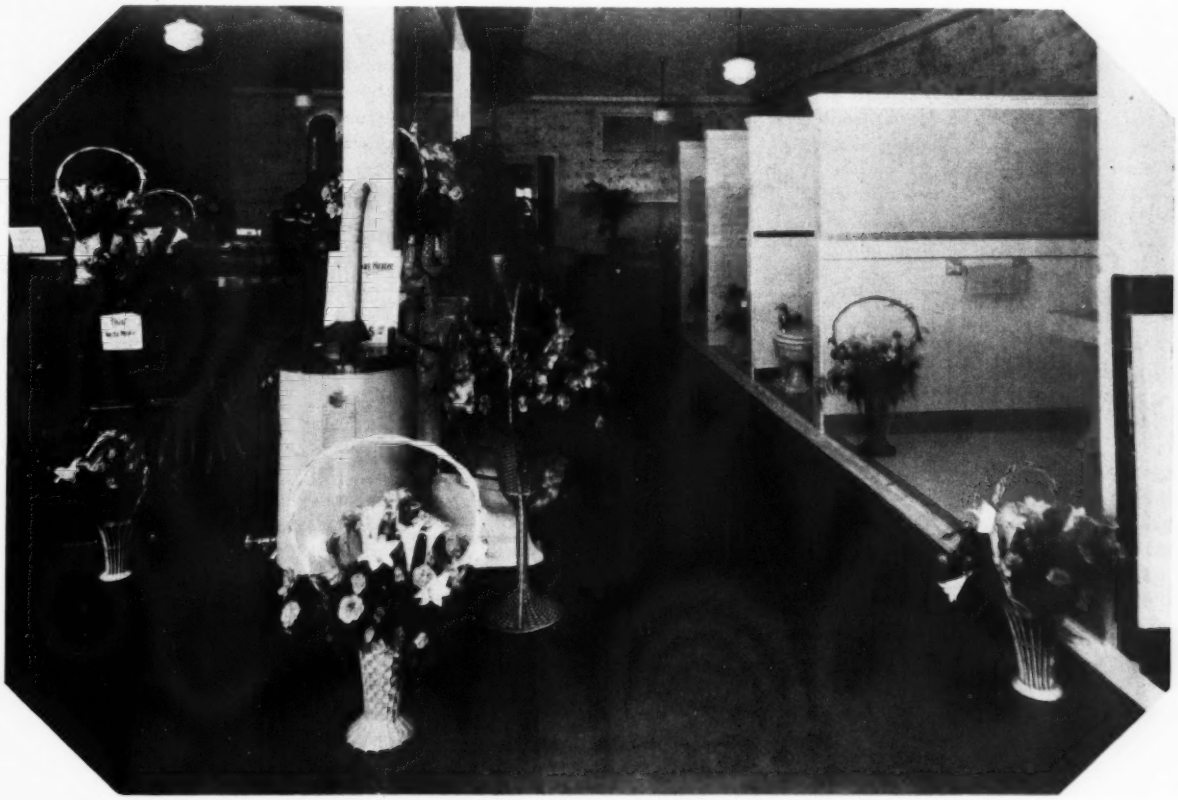
The descriptive copy: "A veritable fairyland bathroom," and the "Solid China lavatory, about three times the size of the ordinary bowl, with fixtures of soft silver—" this copy certainly made those who read it want to see these things for themselves.

Not only did the crowd on opening day provide a fine mailing list, but it produced considerable actual business as well. A number of those who had visited the exhibit came back later to make further inquiries about the fixtures on exhibit. Naturally, with the crowd at the formal opening, it would have been difficult to give the kind of personal attention necessary to a sale.

A local banker, for example, came back a few days after the opening, asked for Mr. O'Pry, and led him over to the first of the model bathrooms showing colored ware. He pointed to an elaborate mirror hanging above the basin. "I wish you would send that out to my house and put it in my bathroom in place of the medicine cabinet you will find there. I was here on opening night and I knew right when I saw this display that I was going to have that mirror. Then the banker caught hold of a neat tan curtain hanging on the metal rod that ran around the tub. "I want that complete set, too."

This is merely one example of the type of sale that followed upon the O'Pry opening. People came, saw, wanted—and there was nothing to do but settle the details.

One of the interesting features of the store—and a feature which helped greatly to increase the prestige of the firm—is the double row of photographs of buildings in which the O'Pry organization has installed plumbing and heating. It is one thing to say that you have done work in this or that structure. But when a double row of pictures, showing some of the finest types of buildings in the South, was put on view—it was not difficult for those who saw them to understand that here was a firm that knew what it was about.



Into this beautiful showroom over six thousand people came to see, to admire, and to buy

Three Thousand Visitors

Three thousand people visited the new store of A. J. Coburn, of Beaumont, Tex., on the day it was opened. A full page advertisement was run in

the newspapers to announce the opening of the store and extending the usual invitation to visit the new place of business.

Mr. Coburn had chosen his location rather shrewdly. Considering location a most important matter, he looked first for a place large enough to show the merchandise he carries in fairly complete selection; and, he added: "It is necessary that you be situated where enough people pass your place to create a certain amount of interest from that angle. When the plumbing concern begins merchandising, it gets into competition with a score of other lines of business which are seeking the attention of the passerby; and it is well for the plumbing shop owner to bear this constantly in mind when laying out his sales floor and selecting a new location."

In selecting his location, Mr. Coburn decided to place his store next to a large food market, this market being the determining factor in the selection of that location. Hundreds of women pass the Coburn store daily on their way to and from the market, and in addition to this there is an inviting passageway leading from the side street, through the Coburn store and into the market.

On the opening day, Mr. Coburn induced the food market next door to co-operate by putting on a special sale on a number of items which, of course, had the effect of attracting an especially large number of people. There was a band playing on the sales floor of the Coburn shop from three o'clock in the afternoon until half-past nine in the evening. A souvenir was offered each visitor in the form of a soap bowl, which cost the company about twenty-three cents. One of these bowls was given to each woman who registered her name, address and telephone number.

Summary

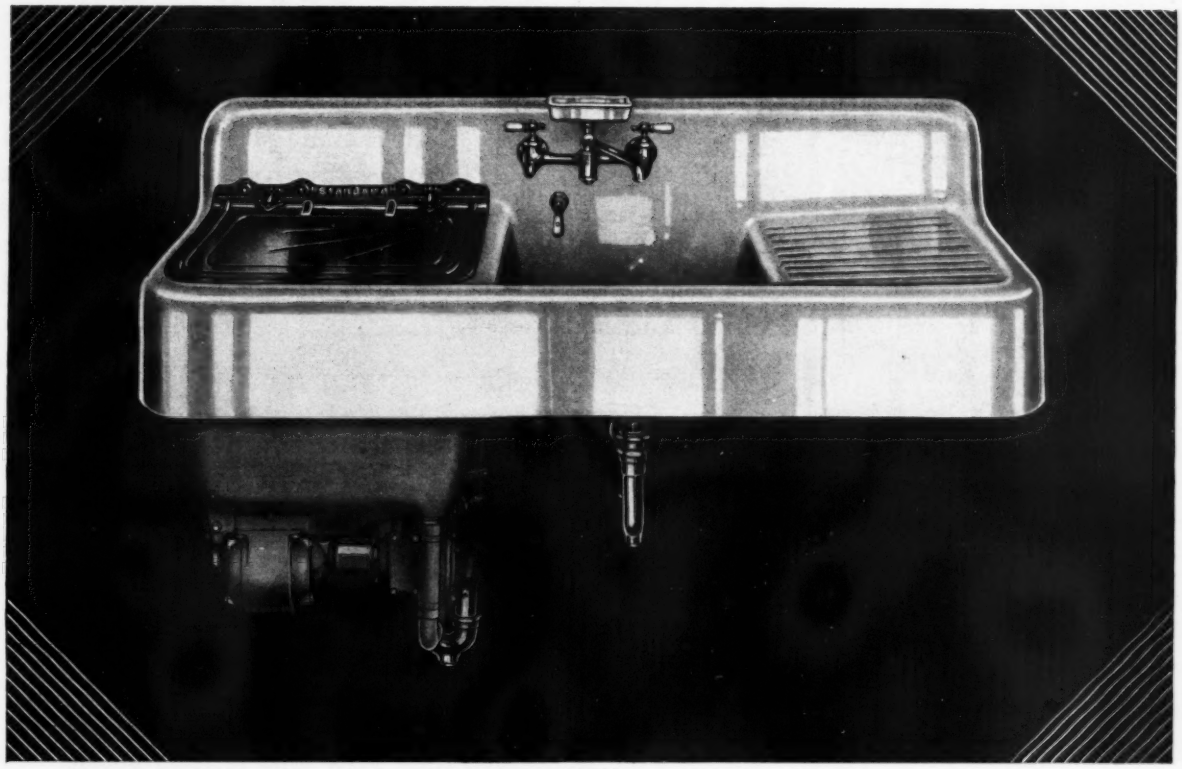
As we have said before in this review of merchandising methods, it is impossible to give anything like a complete plan for any phase of selling. We can hardly give a complete review of all of the material we have published on merchandising. We are striving in this review to pick up the high lights of the merchandising material that has appeared in this section.

In connection with the formal launching of a new store, local conditions and the location of the store will govern the details of the opening. But, in one way or another, it should be actively used as an opportunity to make new friends, build good will and, probably, to make a certain number of actual sales.

For one thing, a formal opening should be made productive of a number of names for the mailing list. This is done by the registration method—the list to be checked later so that those who are not prospects may be removed. It is the generally accepted practice that a souvenir of some kind be offered to those who visit the new store on the day of its opening. The opening of any new place of business naturally excites curiosity—and if there is an offer of a souvenir, the curiosity is likely to become active enough to bring a great number of people into the store.

The properly merchandised opening of a new store, well located, should represent very definitely a new period of growth in the business. It is to be recommended as a matter worthy of study so that the community will recognize the new place of business as a visible sign of the success of its proprietor; and, because it is new, as the headquarters for a business that is, in a way, turning over a new leaf and offering a better and more complete service. As a piece of community news it should also find its way into the news columns.

Three thousand people came into this store the day it was opened formally, a successful bid for public attention



P-6901-A

"Standard" Electric Dishwasher

Improved models at new low prices

As a labor-saving device the electric dishwasher ranks with the electric clothes washer, the gas boiler and the vacuum sweeper. The market is broad—every housewife wants to escape the drudgery of washing dishes three times a day. The profitable way for you to get your share of this business is to push the improved "Standard" Electric Dishwasher. Its very simplicity is assurance of minimized service, complete satisfaction and good profit. This "Standard" Electric Dishwasher is available in both regular enamel and "Standard" Acid-Resisting Enamel; in white and each of eight colors. For all its quality and efficiency, the "Standard" Electric Dishwasher costs no more than others. Write for the new low prices and complete description of eight models.

Standard Sanitary Mfg. Co.

PITTSBURGH

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

"Standard" PLUMBING FIXTURES

RETAIL ADVERTISING SERVICE

EFFICIENCY in the kitchen—this is a subject often touched upon in women's magazines. Tie in with that thought in offering your products and services. Women are studying their household jobs with a view to shortening them—they are trying to put their jobs on the same efficient basis as the work in their husbands' offices and factories.

The Kitchen Sink — an Aid to Efficiency

YEARS ago it was recognized that men and women in the business world who did work requiring great accuracy, must be furnished with a working surface of the right height to avoid fatigue from an uncomfortable posture. In designing the new kitchen sinks, the manufacturers have made them adjustable in height, so that the housewife may work with perfect comfort. You'd be interested in our display of these sinks—in white and color.

(In this space Your Name, Etc.)

For one column space

What about the Housewife's Fatigue?

In the business world they made studies of operations so that workers will not become too tired and thus, toward the end of the day, begin to be less efficient. No one thought, until recently, to make such studies in connection with the work of the housewife. But manufacturers of modern plumbing fixtures—for example, the kitchen sink—have really taken great pains to make height, width, working space and so on so that they will keep the housewife from over-fatigue in her important kitchen duties. You'd enjoy our display of modern sinks—in white and color.

(In this space Your Name, Address, Etc.)

A two-column newspaper ad

Dear Madam:

Yes, efficiency has invaded the home.

Not, however, in an unpleasant sense. But you have noticed in the magazines you read that the domestic science experts have been studying household tasks with a view to eliminating the over-fatigue which has robbed so many women of their youth.

For example, they have considered among other things, such a matter as the height of the kitchen sink, in relation to the height of the person who is to use it. A sink that is either too low or too high becomes an element in over-fatigue.

Manufacturers of modern kitchen sinks have taken these things into consideration, and the height, depth and working surface of the present sink models are all worked out with a view to rendering the sink a comfortable and efficient aid.

We feel sure that you would enjoy our display of modern kitchen sinks--both in white and in color. Just drop in on your shopping trip today. You will not be obligated in any way--we welcome visitors who want to familiarize themselves with advances in the beauty and design of plumbing appliances.

Very truly yours,
HARRY BROWN

A plumbing sales letter

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve —three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

HAPPY HOMES FROM EFFICIENT KITCHENS

"And that's no mere joke," says Harry Brown, local plumbing contractor. "Show me a mother who is over-fatigued, and I'll show you a home that isn't as happy as it might be.

"Women right in this city are working with obsolete equipment in their kitchens that would be enough to spoil the good nature of a saint. If any man wonders why things don't go smoothly in his home, let him look into the household appliances—the kitchen sink, the water heating method—the things we are apt to overlook —and he'll probably find the cause.

"Business men don't want their employes to be over-fatigued because it's bad business. The same thing holds true in the home. Give the housewife a break, too."

Hand this publicity item to your newspaper

Make Them Ask for Facts

A great many people would have radiator heating in their homes if they knew the facts. Make them ask for those facts in your advertising—let them know there's something they don't know as yet.

A two-column newspaper ad

Why do the better types of homes have radiator heating?

BECAUSE in the better type of home there is a desire to eliminate all unnecessary work—and probably because they have the facts about radiator heating.

You can control radiator heating; you can make it automatic. Even if the system you choose costs a little more to install, it will be more economical in the long run than the cheaper system.

Just telephone—we'll send a competent man to put the facts before you. Nothing more. You will be able to make your own decision.

(In this space Your Name, Etc.)

Ask for Facts About Radiator Heating

A phone call will bring them

DON'T go into next winter with a troublesome, hit-or-miss kind of heating system that may be costing you more money in a heating season or two than would have paid for a radiator heating plant originally. Let us send a competent man. He'll tell you the facts—and leave the decision in the matter to you. But if you plan to build—or if you want a more comfortable winter—get the facts!

(In this space Your Name, Etc.)

A single column ad

FACTS THAT ARE SOMETIMES OVERLOOKED

"The business man who prides himself on getting and following the facts," says Harry Brown, local heating contractor, "sometimes leaves that rule at his office.

"He builds a home—or he goes through winter after winter, without adequate, economical heating. All because he hasn't the facts—which he can get by consulting any competent heating engineer. It would mean economy for him in the long run—just as the calling in of experts in his business on matters with which he is unfamiliar, is good business and economy in the long run."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Madam:

This is a letter which, perhaps, should be addressed to your husband.

But we address it to you because you are more familiar with the problems that arise daily in the home than he is--and in the long run he must depend upon your judgment to a great extent.

We are urging our customers and friends to do this: During this summer to get the facts on radiator heating in order that they may go into next winter with a heating system that will mean greater comfort, convenience and economy.

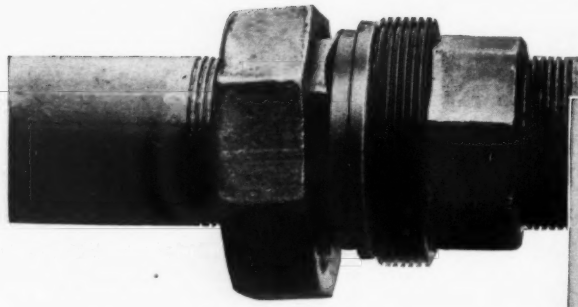
You know how often the heating plant needs attention during the day--how often the house is overheated or underheated--how much fuel is required, and just where the plant fails to give you needed warmth in some exposed room in the house.

We want to send to you a competent man. He will give you the facts about radiator heating. That is all. He will be glad to call at any hour convenient to yourself and your husband. When he has given you the facts, he will leave you to discuss them.

You will not want to go into another winter without those facts--a mere telephone call will bring them--at no obligation to you.

Very truly yours,
HARRY BROWN

A heating sales letter



Easily Disconnected . . . a KEWANEE Union

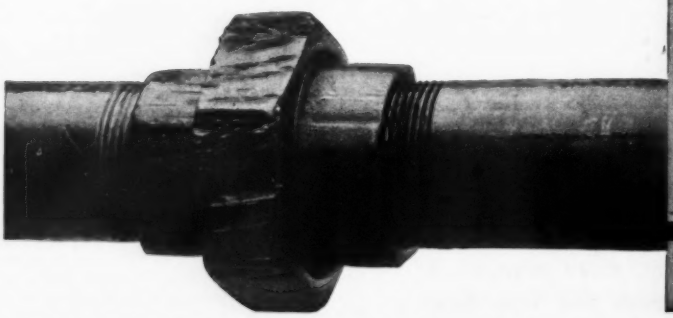
The Kewanee Union, *bronze-to-steel*, cannot corrode

Not even a cold chisel could start the "frozen" threads of the corroded iron-to-iron union shown at the bottom of the page.

But your Kewanee Unions with forged steel to forged bronze thread connection, can be disconnected easily, instantly, any time, with the turn of a wrench. Steel to bronze cannot corrode or "freeze." After years of service you'll find the threads of a Kewanee Union as clean and sharp as when the union was first assembled.

5 POINTS OF SUPERIORITY

- Forged bronze to forged steel thread connection—no corrosion
- Forged bronze to forged steel ball joint seat—no gasket
- Every union tested with air under water—no leaks
- Solid three-piece construction—no inserted parts
- Easily disconnected—no force required



Trouble! a Corroded Union

WALWORTH

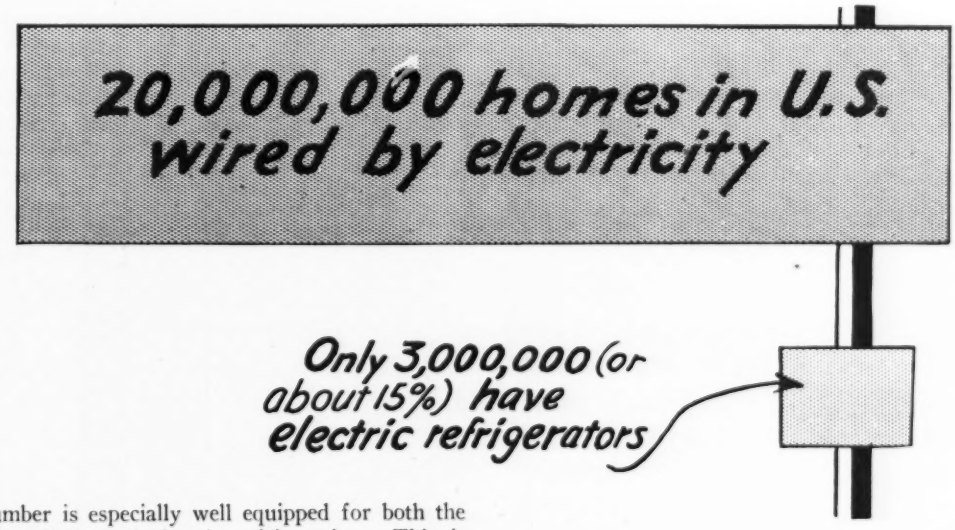
Walworth Company, General Sales Offices: 60 East 42nd St., New York
Walworth Company Limited, 660 St. Catherine Street West, Montreal, P. Q.
Walworth International Co., 19 Rector St., New York, Foreign Representative
. . . Distributors in Principal Cities of the World . . .

VALVES FITTINGS AND TOOLS

Will Sell Million Electric Refrigerators in 1931

ONE of the most significant developments of 1931 is the fact that the volume of business done in the electric refrigeration industry is even greater than it has been during the several years previous. This has been especially fortunate for those plumbing concerns who saw the possibilities in electric refrigeration for themselves, because with people waiting for better times to build and to improve their homes, many phases of the plumbing business have suffered considerably. For a number of reasons, however, people are buying electric refrigerators. In fact, they are buying more of them this year than ever before, which has offset the general slump for thousands of plumbing dealers all over the country.

Figures compiled by the Electric Refrigeration News indicate that sales for this year may run to 1,300,000 units with a value of $475,000,000, of which 1,000,000 would be for household use. It has been estimated that there are over 20,000,000 homes in the United States wired for electricity and that only 3,000,000 families, or about 15 per cent of the total, have electric refrigerating equipment. The above estimate for 1931 sales compares with the record established last year when about 770,000 household and 232,000 commercial units were sold, a total of 1,002,000 with a dollar value in excess of $380,000,000.



The plumber is especially well equipped for both the sale and installation of electric refrigeration. This is especially true of those electric refrigerators that leave the factory completely assembled and ready to be plugged in. His market is vast, with only about one-seventh of the wired homes in this country equipped with electric refrigerators.

The plumber has still another advantage in his familiarity with the types of homes and the probability of the people in his locality being prospects for electric refrigerators. He is also in an advantageous position to approach most of his prospects as against the cold canvass of the specialty type salesman. More than that, his daily plumbing contacts put him in touch with a great many people to whom he can talk electric refrigeration.

One electric refrigeration manufacturer has built up an ever increasing business largely through the plumbing trade, and this method of distribution has proved to be mutually profitable, both for the manufacturer and the plumber, who are showing very definite evidence of concentrated effort to sell electric refrigeration.

Factors which have contributed to the comparative success of this "infant industry" aside from sales campaigns of the manufacturers range from a $5,000,000 appropriation made this year by the National Electric Light Association for the widespread advertising of the advantages of electric refrigeration, to the necessities of apartment owners in meeting their tenants' demands.

One of the effects of unsettled business conditions, accompanied by widespread unemployment in industrial centers, and falling price levels, has been a noticeable tendency to "double up" in occupancy of houses and apartments, and in many quarters to use more restricted living quarters. The coincidence of an over-built apartment building market in some areas and less satisfactory business conditions has created a situation in which rent-ing agents have been compelled to compete on a basis of increased price concessions, or of greater values through modernization.

The pressure exerted by tenants for the modernizing of refrigerating systems has been increasing gradually over the last two or three years as the advantages were more widely appreciated, but the tenants' demands have gained weight under present conditions.

Denver Tries Fishing From An Easy Chair

Is It Fun?

» » » » Ask the Plumbing Contractor Who Installed This Brand New Idea in Popular Sport « « « « «

THE plumbing installation in the recently completed commercial trout fishing stream of Trout, Inc., in Denver, presents an interesting view of the possibilities for engineering accomplishments on aquatic projects.

With the number of patrons of the pool increasing daily and one other similar project now under construction in Colorado Springs, Colorado, indications are that miniature fishing may become almost as popular as miniature golf. Therefore, progressive plumbers can well afford to keep this field in mind as a possible one for profitable installations.

The installation in the Denver trout pool was made by the J. E. Kiefer Plumbing Co. Several unique problems were encountered in meeting the requirements of the owners. In the first place it was imperative that the water be kept in constant motion and that it be changed or aerated often enough to supply the stock of 5,000 fish with oxygen.

This end was accomplished through the use of a unique combination of waterwheels, pumps and fountains. The stream is constructed in two parts. It consists of two concrete pools each measuring 90

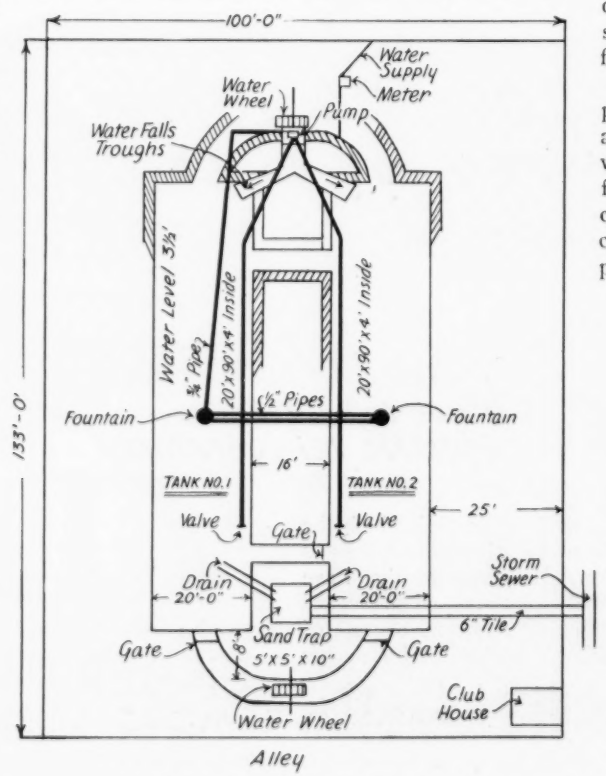
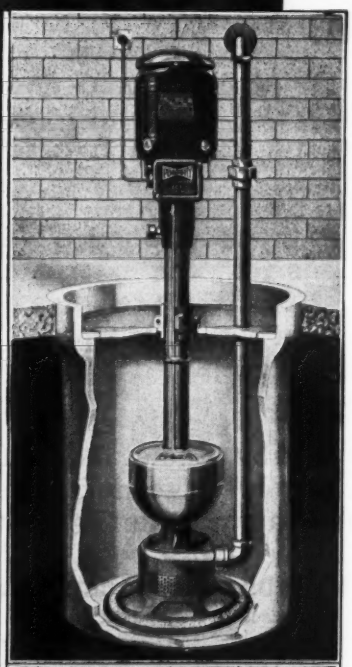


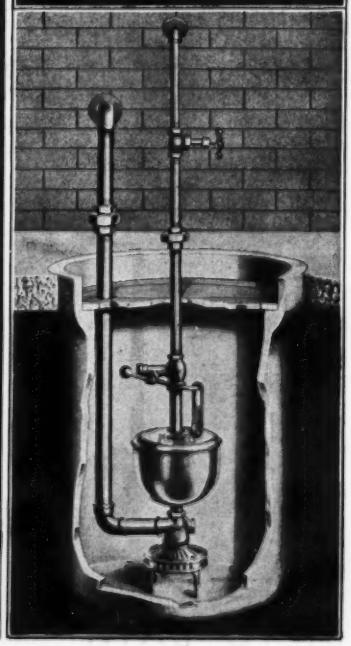
Fig. 1—At the right is a plan of the artificial trout stream. It can be seen very readily that practically the entire job centers about the plumbing

RUST PROOF

COPPER AND BRONZE THROUGHOUT



PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE plumbing contractor need not be told the many advantages of using copper and bronze in the construction of equipment for the removal of seepage water from basements, elevator sumps, scale pits, piping tunnels, etc.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

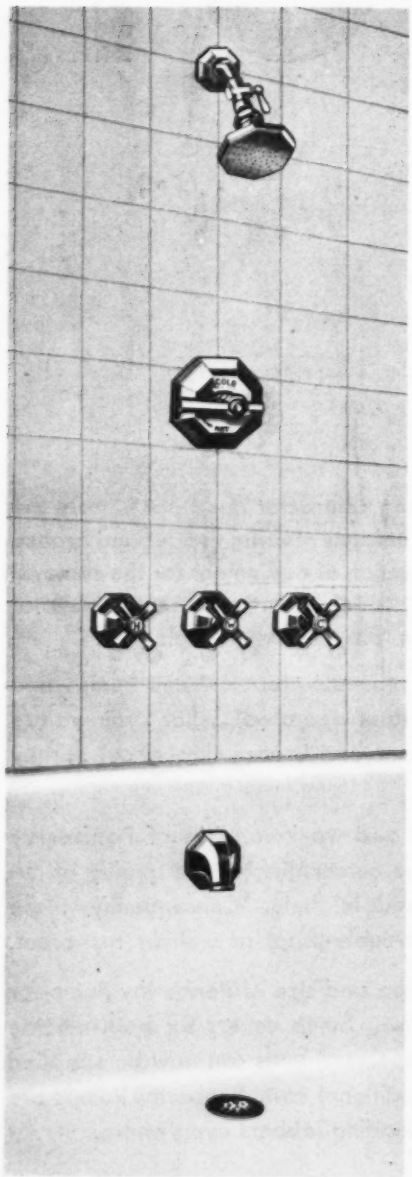
PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

NUART

Smart in Style
Sure in Quality



Many a bathroom has been completely refitted just because a wide-awake plumber has shown home owners these smart HAYS Nuart Fixtures.

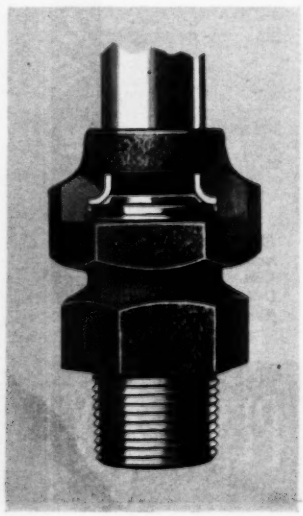
"Good looking," is the verdict of everyone who sees the Nuart octagonal design with its rich lustre of HAYS Chromium Plating, the finish that maintains its brilliance permanently without polishing.

And, to the man who looks below the surface, it is obvious that the exterior quality goes clear through. Nuart Fixtures give dependable service for the life of the building. Valves are furnished with chromium plated seats to resist the action of hard water.

Your nearby wholesaler can supply you with HAYS quality brass goods for every home requirement and is a good man to know. May we send you his name and a copy of the HAYS Catalog Section describing the products that interest you?

Connect these Nuart Fixtures by The Hays Copper Plumbing Method

The HAYS Double Seal Connection, as illustrated at the right, is the strongest and surest connection for copper plumbing. The double grip and double seal assure a leak proof joint to withstand shock, strain and all the ravages of time. Write for descriptive booklet.



HAYS MANUFACTURING CO.
ERIE, PA.

BATHROOM FIXTURES

HAYS

BRASS GOODS FROM STREET TO BATH

ft. by 20 ft. by 4 ft., which are connected at both ends by horseshoe shaped canals 4 ft. deep and 3 ft. across. The capacity of the entire stream is 150,000 gallons. The water is kept in constant motion, being completely circulated every three minutes. This circulation is accomplished by two waterwheels, one located in each of the end canals. Each wheel is driven by a 3 Hp. electric motor. The wheels maintain a current of about 35 ft. per minute, which is equal to the level flow of the average stream.

Cooling the Water

Mountain trout cannot live in water warmer than 52 deg. Fahr. Cooling of the constantly changing water, therefore, also had to be considered. The refrigeration installation consists of an eight-ton capacity ammonia plant, and 400 ft. of 1¼-in. coil running along the bottom of the two tanks. A 6-in. coating of ice was formed on this pipe, and this keeps the water at the desired temperature. The ammonia plant also was connected with a 4 ft. by 6 ft. ice chest. This is used for cooling the fish before they are taken home by the customers.

All water for the pool is brought directly from the city main in a two-inch special lead pipe. The water flows in at the rate of 250 gallons per minute at a pressure of 90 lb. The meter is located in the street, between the main and the power house from which the water is carried to the pool.

At the point where the 2-in. lead pipe enters the power house, a ¾-in. tap, valve controlled, is taken off. This pipe leads to a fountain in the center of pool No. 1, which sprays a 3-ft. stream of water into the air. The water is aerated as it falls. From this fountain are taken two ½-in. pipes, leading to another fountain at a corresponding point in pool No. 2. The use of two smaller pipes equalizes the flow of water—resulting in an even fountain spray.

The remainder of the 250 gallons of water which comes through the meter each minute is raised by the pressure in the main to a level three feet above the surface of the pool. It is then emptied over a waterfall in equal volumes into each pool. This feature was also designed for aeration of the city water.

In order to make doubly certain that the fish receive enough air, a centrifugal pump was connected with two, valve fitted, 2-in. pipes. One pipe leads from each pool, being located at the opposite ends of the stream. In the event that the air in one pool or in both becomes deficient, the valves may be opened and a stream of water is pumped back over the waterfall. This step replenishes the exhausted supply of oxygen. The amount of city water used has been considerably reduced by use of the pump. The same water may be used several times.

Two Hours Required to Empty

The entire 150,000 gallons of water may be removed in two hours time through two 6-in. drains—one from each pool—which empty into a 5-ft. by 5-ft. by 10-ft. sand trap. The huge volume of water passing through the pool each day made it necessary to connect the trap with the storm sewer instead of the sanitary sewer. The water level of both pools is kept at 3½ ft. The overflow goes into the sand trap 4 ft. above the bottom level.

The water is removed from the sand trap by means of a 6-in. tile pipe which connects directly with the 48-in. storm sewer in the street. A sink was installed in the office of the establishment for dressing the fish. The sink was installed in an ordinary manner and connected with the sanitary sewer.

The plumbing installation cost in the neighborhood of $1,000. The cost of the refrigerating plant was approximately $2,000. Equipment used in the plumbing installation included 84 ft. of 2-in. pipe, 100 ft. of ¾-in. pipe

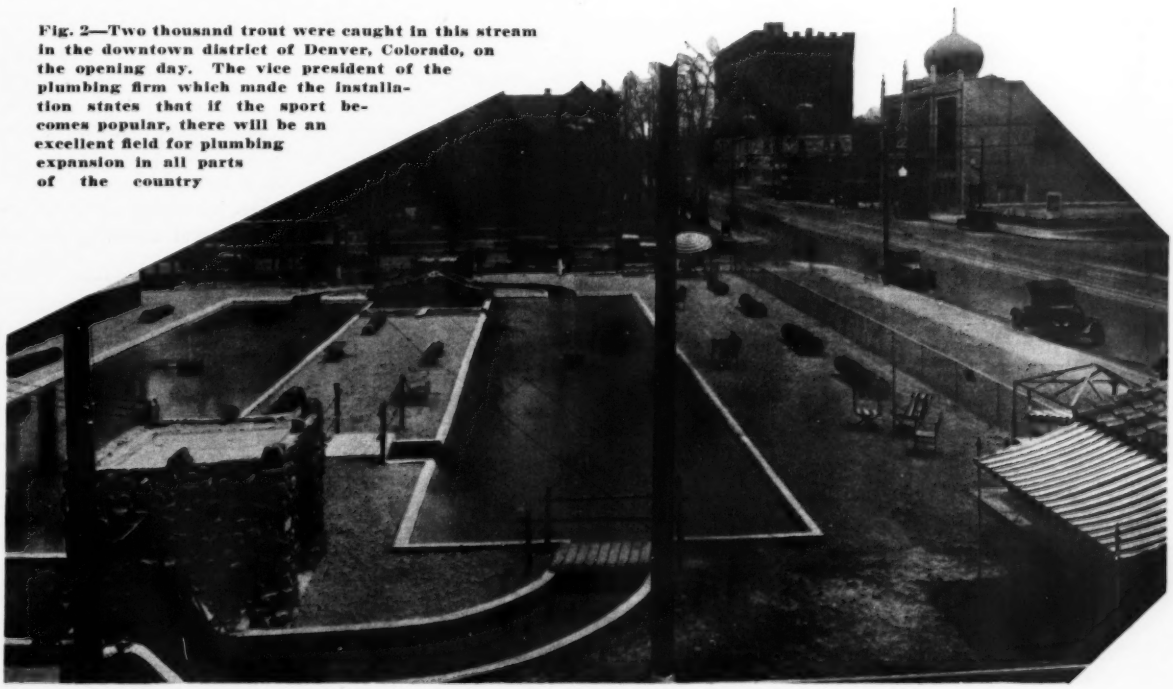


Fig. 2—Two thousand trout were caught in this stream in the downtown district of Denver, Colorado, on the opening day. The vice president of the plumbing firm which made the installation states that if the sport becomes popular, there will be an excellent field for plumbing expansion in all parts of the country

and ½-in. pipe, 70 ft. of 6-in. tile, 8 ft. of 1½-in. pipe, 10 ft. of 2-in. cast iron pipe, two steel fountain heads and one sink.

The cost of the entire pool was $10,000. It is the first of its kind in the United States and it is unique in that anglers are given running water in which to cast their hooks. The cost of operating the pool is $50 per day.

The plumbing and refrigerating installations were of great importance in this instance as the lives of the entire stock of 5,000 fish are constantly dependent upon their being given enough air in water maintained at a low temperature. Having a strong current also was an important factor as the popularity of the pool among fishermen depends to a great extent upon this feature.

"We found the job one of the most interesting from an engineering standpoint that we have ever undertaken," F. C. Bock, vice-president of the firm, declared. "Our margin of profit was also a worthwhile one. We feel that if the sport becomes popular, there will be an excellent field for plumbing expansion in all parts of the country."

This job has proved highly valuable to the Kiefer company from an advertising standpoint. The pool is located on a through town business street and consequently comes to the attention of hundreds of people who do not fish. Over 2,000 fish were caught the opening day.

Bungalow Plumbing

By S. M. BARR

THE plumbing system for the modern bungalow is the simplest layout that the plumber meets as far as plumbing for dwellings is concerned, and yet it is surprising the number of different combinations that can be worked out with the four or five fixtures that generally constitute the plumbing for such a dwelling.

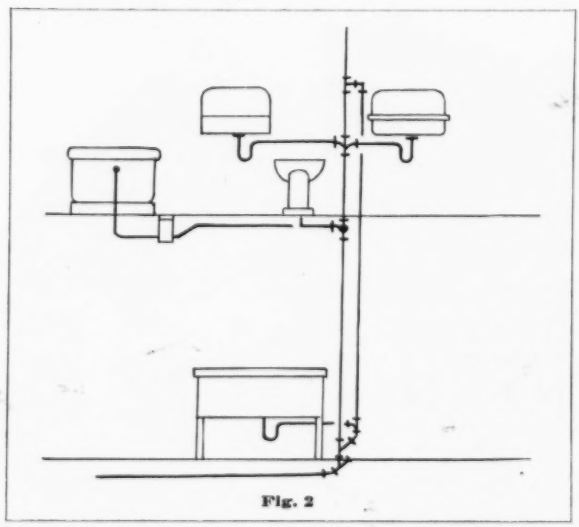


Fig. 2

In general, bungalow layouts may be classified under four principal headings, as follows: First, all fixtures on one floor, and entering one stack; second, all fixtures entering one stack, with laundry tubs in the cellar; third, all fixtures on one floor, with sink and laundry tubs served by a second stack; fourth, two stacks used, with laundry tubs in the cellar. A fifth class might be added, in which two stacks are used, with cellar laundry tubs the only fixture on the second stack, but this combination is more of a variation than a separate classification.

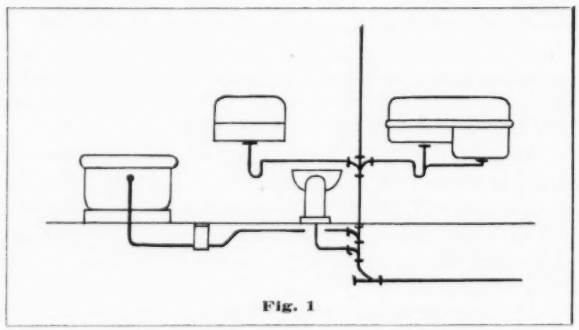


Fig. 1

The five classifications named above are illustrated, respectively, by Figs. 1, 2, 3, 4 and 5.

It needs only the addition of a cellar water closet to upset these layouts considerably, but this fixture we do not feel is to be included in the ordinary run of bungalows. Of course, however, some very beautiful and expensive bungalows are to be found which contain a much greater line of plumbing equipment than we are considering in this article.

Figs. 1 to 5 show the three bathroom fixtures arranged on one side of the room, and figuring that in bungalow work the water closet will almost always be close to the stack, there would be perhaps three different arrangements of these fixtures for each of the four classifications. Then there would also be those layouts in which one or the other of the fixtures might be

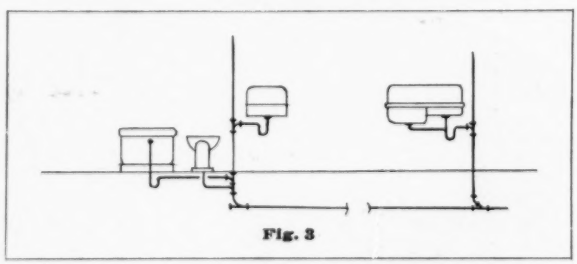


Fig. 3

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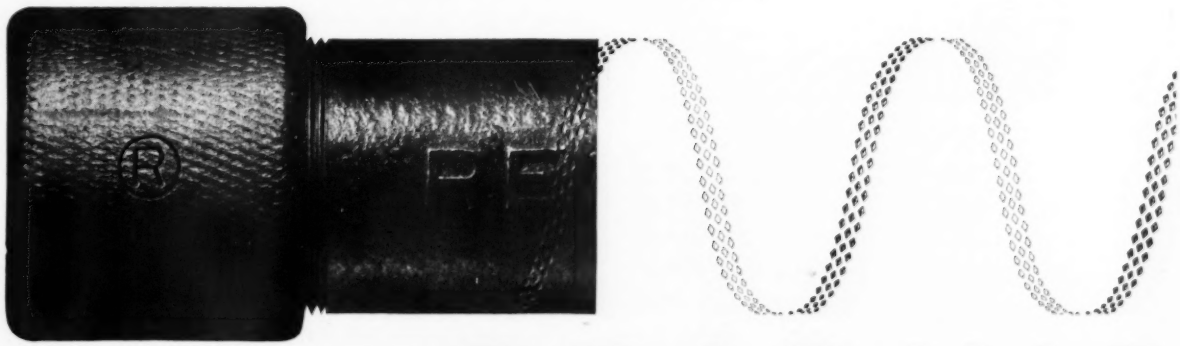

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across the room from the other fixtures, in some instances requiring to be vented.

From the foregoing it would seem reasonable to figure that in each one of the four classifications of

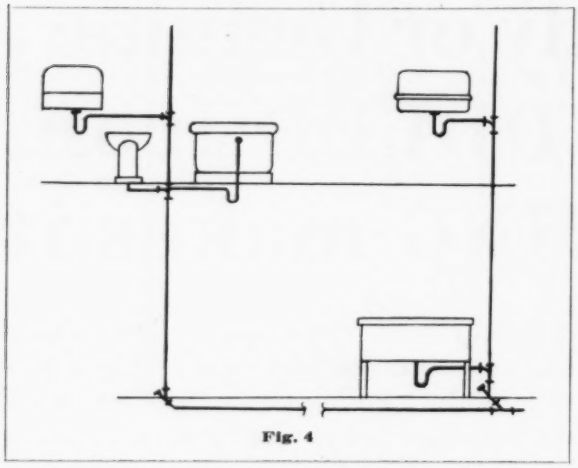

Fig. 4

common bungalow plumbing installations there would be about five different combinations of the bathroom fixtures, and that therefore there would be something like twenty-five different plumbing layouts for bunga-

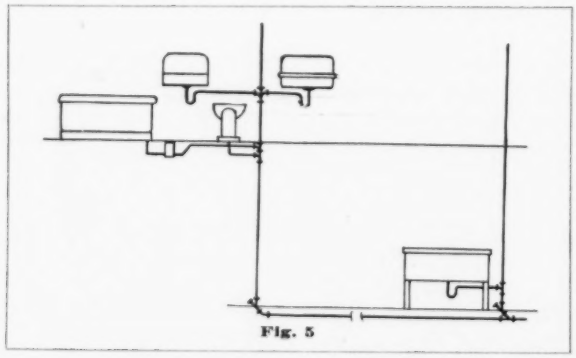

Fig. 5

lows, based on the use of five fixtures or four if the combination sink and laundry tub is used.

Of the five layouts in Figs. 1 to 5, only one requires the individual venting of any one of the fixtures, and

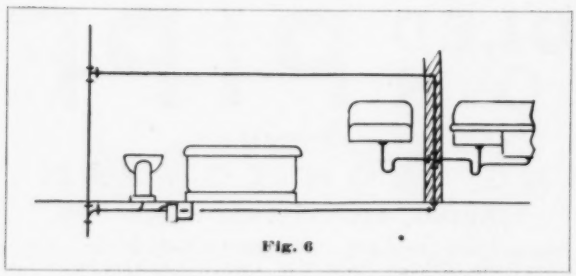

Fig. 6

in that instance, Fig. 5, if a combination fixture had been used in place of a separate sink and laundry tubs, that vent could have been avoided.

We have estimated twenty-five layouts that might perhaps be called standard; that is, they would probably be met with most generally. But there would be numerous other possible combinations.

For instance, such a combination as shown in Fig. 6 might often be found, in which the lavatory or lavatory and combination fixture were at such a distance from the stack as to necessitate venting them.

We have said that only infrequently is the bungalow water closet located other than close to the stack. It does sometimes happen, however, that conditions make it necessary to set the water closet away from the stack, and then some such layout as in Fig. 7 results.

What we have written refers particularly to bungalow work, but it will be obvious that the same principles that we have brought out may be applied to other plumbing layouts that have nothing to do with bunga-

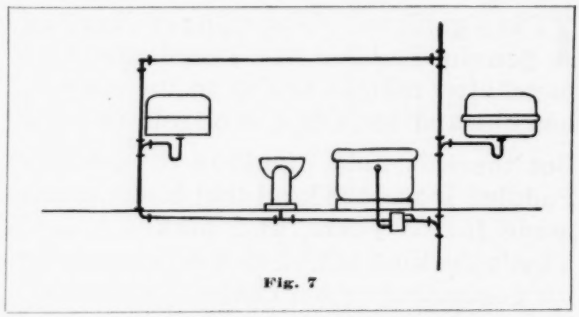

Fig. 7

lows. For instance, much that applies to bungalows also applies to single houses, cottage houses, etc.

It will be clear that the thing which makes bungalow plumbing so simple is the fact that in the case of the bungalow bathroom there is never any sewage being discharged into its stack at some point above. The same situation puts any top floor bathroom into the same classification as the bungalow bathroom. Therefore it is true that all of the bathroom connections shown in Figs. 1 to 7 would be equally as applicable to the top floor of a tall building as to a bungalow, and applicable also on any other floor of the tall building if no sewage discharged into the stack at any point above that floor.

Notwithstanding the extreme simplicity of the bungalow bathroom connections, a study of a collection of pilot drawings shows that in a considerable number of instances these drawings show the bathroom fixtures individually vented. For instance, we have seen cases where in such a layout as Fig. 1 the bathtub had to be vented, also the water closet.

One of the things that has simplified such work as we are discussing is the increased use of drainage fittings and of iron closet bends which are provided with side inlets for serving other fixtures in the group.

◆

It makes no difference where you go, you will always find that by far the largest percentage of complaints of home owners is that the heating plant smokes unmercifully and we, through our organization of approximately 2,000 engineers devoting all of their time to the home owner's heating problems have found that over 80 per cent of the complaints reaching headquarters are caused by inadequate leaky chimney flues.—V. W. Cherven, before the Smoke Prevention Association.

AUTOMATIC HEAT

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In this Issue:

The Modern Basement

Setting Heights for Boilers with Stokers

Gas for House Heating

Planned Oil Burner Sales

AUTOMATIC HEAT

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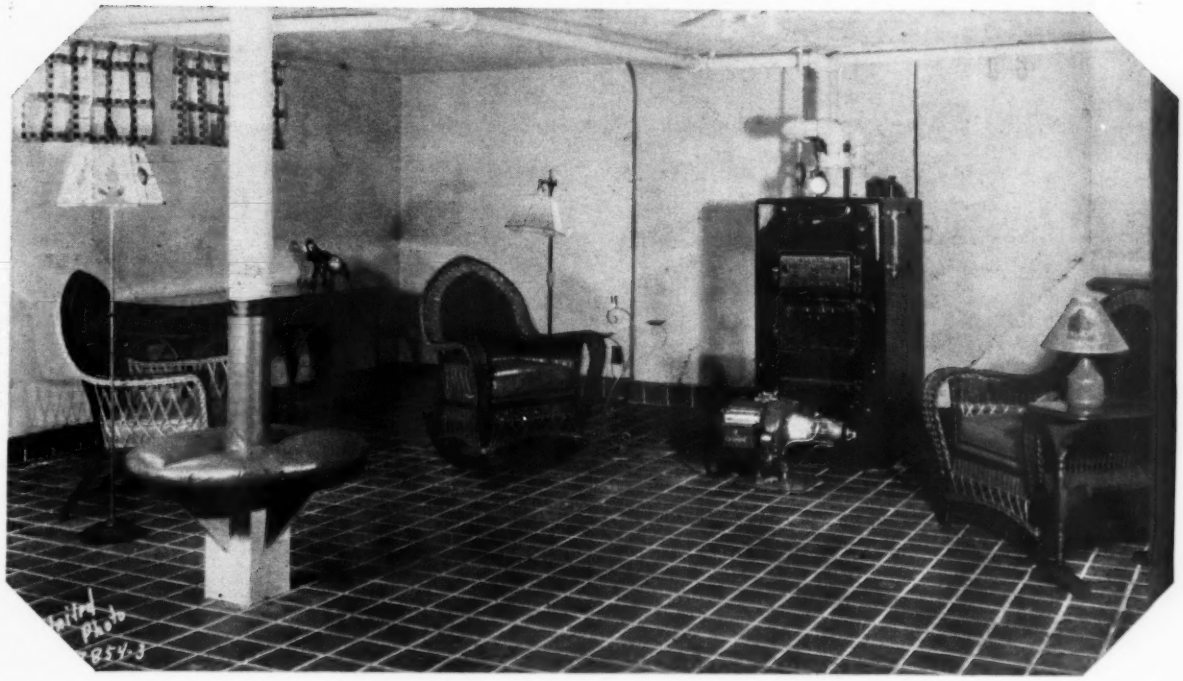
The Modern Basement

a new development in the home which adds to living space



Comfortable quarters for entertainment made possible by an oil burner

In vivid language, F. A. Meissner, Sales Manager for the Neuberger Oil Burner Installation Co., Inc., of Lawrence, L. I., tells of the selling principles he follows; and also gives a spirited description of a basement that has been "modernized" in a way that takes the visitors back several centuries

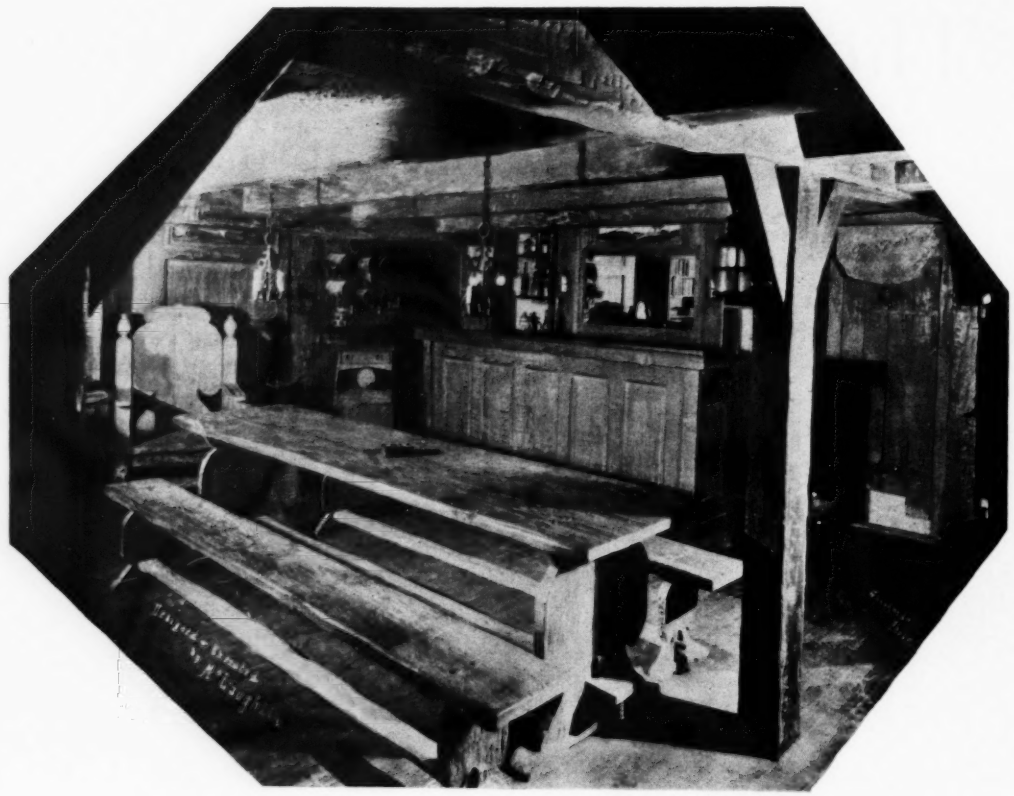
WE CAN, frankly speaking, say that whereas we have hundreds of installations in our small territory, we do not know of any other basement where the space has been utilized in such a unique manner to accomplish the real old tavern atmosphere, as shown in the accompanying photographs.

This basement has received considerable publicity locally through the Nassau Daily Review, a daily Long Island publication, printed in Rockville Centre, which, two months ago, displayed an extensive write-up with pictures taken in various parts of the house, upstairs as well as the basement. It is truly a marvellous house in every respect.

A Remarkable Basement

It may be interesting to note that Mr. Rindermann's basement, which covers the entire ground area of the house, is divided in the following manner: From the entry upstairs at kitchen there is a stairway leading into basement, as noted on one of the pictures herewith, which brings one down immediately into the charming reception room.

And now, getting back to our stairway picture, you will note a door, this door enters into a very modern laundry room with all manner of, may we say, tools to accomplish its purpose and then there is a door leading directly from the corner of this reception room into the tavern room, as shown on another picture accompany-



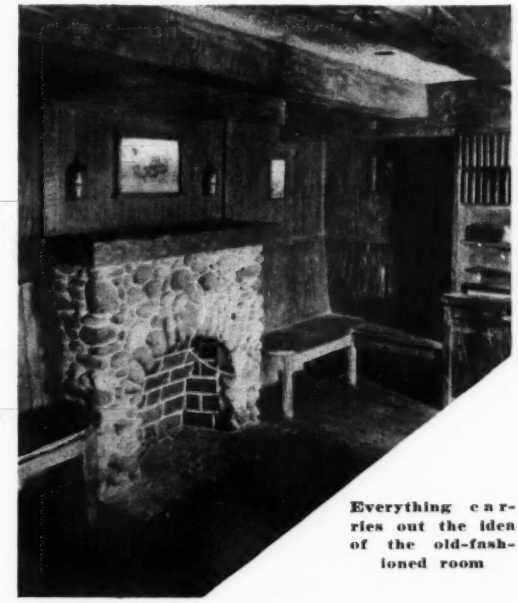
Above: This basement has been named "The Tavern" by reason of its rebuilding in the spirit of some of those older institutions. Below: The little reception room that awaits the visitor

ing, where one can see the long tables and benches and other items of solid comfort; and then beyond adjoining this is the boiler room, which is amply large enough to accommodate a modern jacketed steam boiler, that heats the house, with the usual hot water storage tank and gas heater as auxiliary hot water generating apparatus and connecting the tank and boiler, the usual hot water generator. The oil burner matches the color scheme in the boiler room and is controlled for domestic hot water winter and summer hook-up, so arranged as to economically provide hot water in the summer without creating any vapor and steam during the warm weather.

Adjoining the boiler room, is what the writer believes the most remarkable home work shop we have ever seen. All manner of practical wood turning lathe equipment, drill presses, saws and various other electric motor driven tools for carpenter work, that would be the envy of anyone who is interested in such hobbies.

He Regards Selling As a Game

Speaking of selling efforts, permit me to reminisce for a moment. School days . . . we enjoyed fishing, hunting, baseball, collecting metal junk, stamps, butterfiies, flowers; perhaps we did some trading or buying and selling to provide ways and means of accomplishing our success, but, above all, was the game. . . . *The game* intensified, only, in so far as we became interested



Everything carries out the idea of the old-fashioned room

in it. So selling, with interest, becomes self-supporting in the natural course of events.

In selling automatic heating, many are the ramifications involved to draw on one's interest.

FIRST—There is the game of locating prospects, by means of:

- Factory Help
  - national advertising
    - radio
    - magazines
    - newspaper
  - good product
    - performance
- Local Color
  - prestige established
  - local reputation
  - salesman
  - newspaper
  - school publications
  - telephone
  - show room
  - users
- Installation
  - operation perfection
  - neatness
- Service
  - prompt
  - efficient
  - courteous

Satisfied users create the majority of prospects. Watching this list of satisfied customers grow, that is "the game" now . . . obviously the bank account must grow or there is no fun in it.

SECOND — Contacting prospects; promptness is the first duty . . . a careful survey of all the ramifications pertaining to the prospect's potential automatic heating . . . a plainly understood explanation of his requirements, with facts and figures, if necessary . . . perhaps a parallel case presents itself to mind, referring to where just such a duplicate was made . . . the latter inspires the greatest confidence.

Making up a detail proposal that is plain and understandable, not omitting a thing. . . . Leave nothing to the imagination or promise.

Ask for the order but, strike for a close only, if the way is plainly clear. A call back at just the right time is becoming more popular to the average intelligent buyer of today. Here is where the psychological art of selling steps in and you win or loose according to how you "play" with the particular prospect in hand. No two salesmen will handle the same situation alike, so why discuss it here, when there are dozens of books by authorities to read on the subject. May the best man win.

At the foot of the stairway—the door on the right leads into a well-equipped laundry

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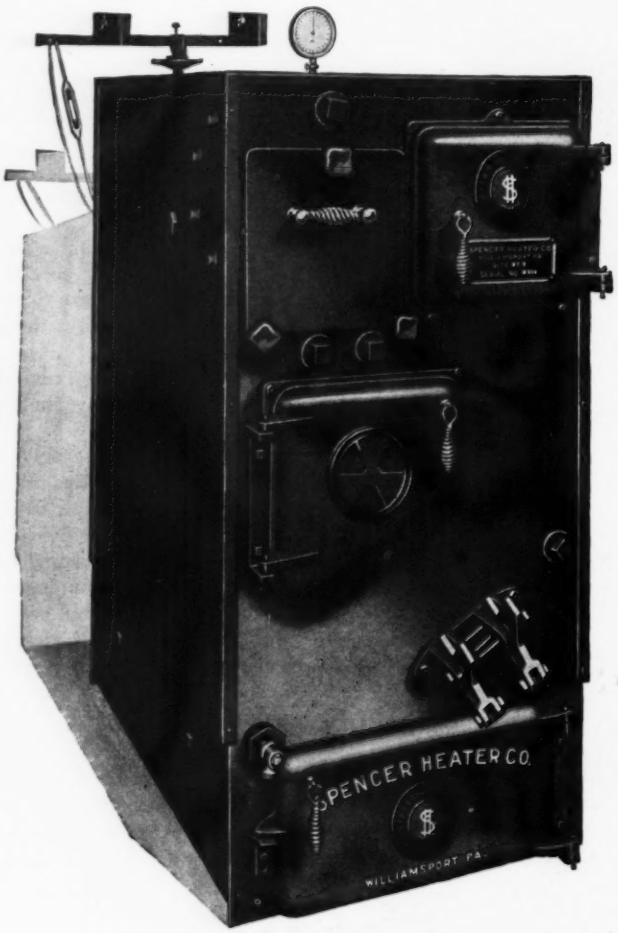

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Setting Heights *for* Boilers *with* Stokers

Standards set up by Midwest Stoker Association recommending procedure for various types of boilers equipped with mechanical stokers

Setting heights are of vital importance from the standpoint of smokeless and efficient stoker operation

IN RECENT months the engineering committee of the Midwest Stoker Association has worked on recommended setting heights for heating boilers equipped with mechanical stokers. These recommendations have been released as shown in the table on the next page.

According to a statement by E. L. Beckwith, past president of the association, it is not intended that these setting heights should become obligatory. They have been prepared primarily as a guide in laying out boiler rooms and in determining space requirements, especially head room.

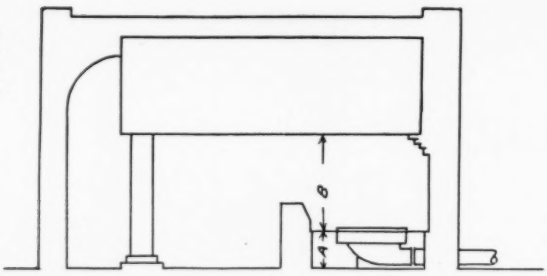
The "A" dimension distance from the bottom of the water leg to the floor corresponds in most cases to the distance of the stoker grate line above the floor and is information that never, heretofore, has been given collectively. The "B" dimension is the distance from the crown sheet to the bottom of the water leg and can be determined from heating boiler catalogs. The combined "A" and "B" dimensions determine the setting height of the boiler under consideration.

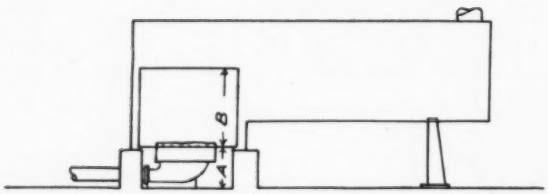
It will be found that frequently the recommended "B" dimension is greater than the corresponding distance from the crown sheet to the bottom of the water leg of present heating boilers. This may be disregarded. In any event the "A" plus "B" dimension will become the recommended setting height.

The actual method to be used in making stoker installations will depend upon the requirements of the particular stoker selected, but if these dimensions are adhered to all of the stokers represented in the Midwest Stoker Association can be installed to make a satisfactory smokeless job.

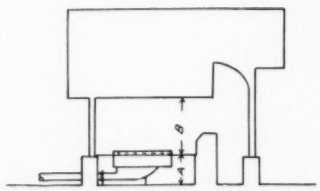
Many factors have been considered in making these recommendations of height. One of the most important is that the heat release in the furnace should not exceed 50,000 Btu. per cubic foot of combustion volume per

At the right is shown what is meant regarding the "A" and "B" dimensions for an H. R. T. boiler





In the case of this fire box type of boiler, the "A" dimension is the distance from the bottom of the water leg to the floor, while the "B" dimension is measured from the crown sheet to the bottom of the water leg



The compact welded type of boiler also is considered in this classification where the "A" plus "B" dimension becomes the recommended setting height

hour. These recommendations comply with the requirements of the Chicago smoke ordinance.

In interpreting the tables notice that the ratings expressed in square feet of equivalent steam radiation must be taken on the basis of actual boiler load; for example, if a 10,000-ft. boiler is to be installed but the load on this boiler is 50 per cent more than manufacturer's rating, the correct setting height will be found in the 15,000-ft. column.

On the other hand, if a boiler is not operated up to full rated capacity we do not recommend lowering the setting height, but prefer that the rated capacity of the boiler, in such a situation, becomes the setting criterion.

We believe this is a constructive step in engineering and will be of considerable aid not only to architects and engineers and heating contractors, but to smoke departments, particularly to the user of the equipment, and to the industry as a whole. We believe if heating boilers are set in this manner that greater efficiency will be obtained, smokeless operation assured, and a considerable saving in coal consumption effected.

Recommended Setting Heights for Heating Boilers Equipped with Mechanical Stokers

Firebox Boilers

Actual Load	2500	5000	7500	10000	12500	15000	20000	25000	30000
A	18"	18"	20"	20"	22"	22"	24"	24"	24"
B	42"	48"	54"	60"	66"	72"	78"	84"	84"

A = Distance from bottom of Water Leg to floor. B = Distance from Crown Sheet to bottom of Water Leg.

Compact Welded Boilers

Actual Load	2500	5000	7500	10000	12500	15000	20000	25000	30000
A	18"	18"	20"	20"	22"	22"	24"	24"	24"
B	30"	33"	36"	42"	45"	48"	54"	60"	60"

A = Distance from bottom of Water Leg to floor. B = Distance from Crown Sheet to bottom of Water Leg.

H. R. T. Boilers

H. P.	50	75	100	125	150	175	200	225	250	275	300
A	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-0"

A = Distance from bottom of shell to floor. H. P. = Installed horsepower.

In the case of the firebox or compact welded type boilers the desired setting height can be obtained by combining the A and B dimensions. The load ratings shown for this class of boilers are actual developed loads in square feet of equivalent cast iron steam radiation and are not manufacturers' rating.

The setting heights given for H. R. T. boilers may be used for developed loads up to 50% above normal rating.

Gas for House Heating

By H. B. JOHNS

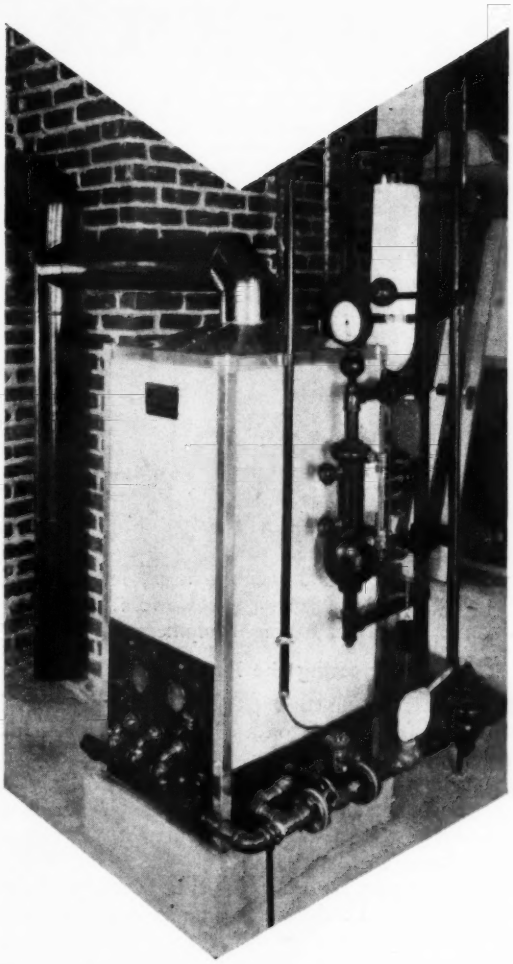


Fig. 1—This shows a gas fired boiler installed in connection with a vapor system

TWO methods of applying gas burning equipment to heating systems in homes are in common use. One is to install a boiler or furnace designed especially for gas, and the other is to install a conversion burner in an appliance which is designed to burn some other fuel.

In connection with the use of equipment designed to burn gas exclusively, the *American Gas Association*, through its testing laboratory, has set up certain standards of performance and construction. Approval by this laboratory indicates that the gas-fired boiler or furnace has met certain standards of safety and operating efficiency and that it burns gas at a certain rate without showing the presence of carbon monoxide in the flue products. The minimum acceptable thermal efficiency for water and steam boilers is 75 per cent and for warm air furnaces is 70 per cent, based on the gross or entire heat value of the gas. Fig. 1 shows a gas-fired boiler for a vapor system.

Several manufacturers of gas-fired boilers and furnaces have designed their equipment so that burner cocks and other control equipment are completely hidden from view, and the exterior of these appliances presents a

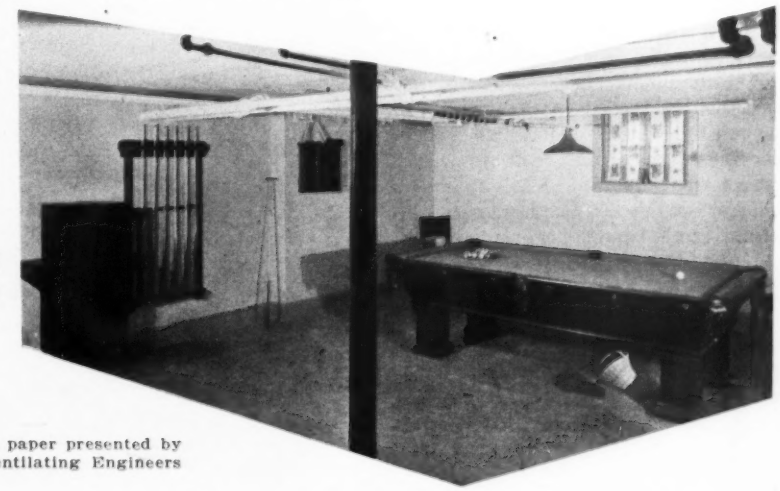


Fig. 2—Some idea may be obtained from this view as to what may be accomplished in the way of making recreation rooms in the basement when clean automatic heat is installed

This article consists of excerpts from a paper presented by the American Society of Heating and Ventilating Engineers in their Journal.

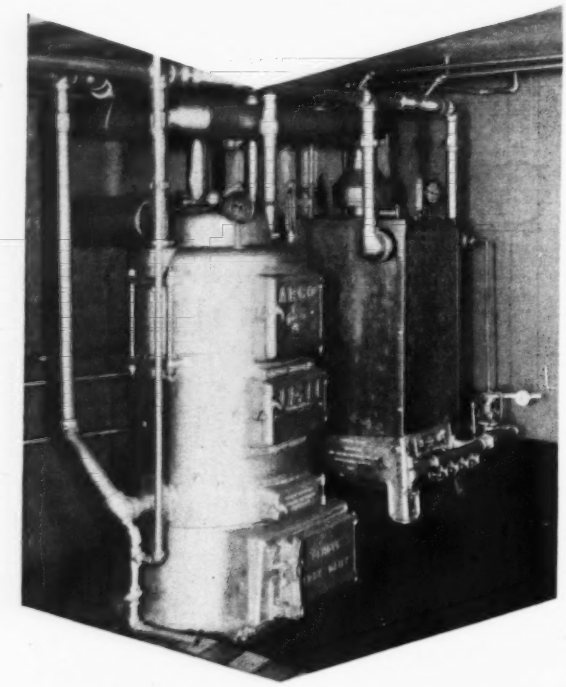


Fig. 3—Gas fired boilers for steam and hot water heating systems may be cross connected with boilers fired with other fuels if so desired by the owner. The view at the left shows such an installation

stream-line appearance. This feature enables the architect and heating engineer to give his client a heating system which will require a minimum of space in the basement, and at the same time does not detract from the appearance of any special rooms which might be built into the basement.

Since gas burns with a non-luminous flame which produces relatively little radiant heat, it is necessary to construct boilers and furnaces with ample secondary heating surfaces in order to *scrub* or *wipe* the heat out of the combustion products. In converting boilers designed to burn solid fuel, it frequently is found that the heating surface is inadequate to obtain a satisfactory operating efficiency and it is then necessary to introduce refractory materials and baffles so that as much radiant heat as possible will be developed and to be sure that all heating surfaces are utilized to the fullest extent. This problem is encountered especially when converting the smaller round boilers.

On account of the flexibility of gas as a fuel and the ease with which it can be controlled, both conversion burners and gas-designed equipment are usually completely equipped with automatic control equipment. For operation with steam and vapor heating systems, steam pressure limit controls and low water protection devices are used. For hot water, a water temperature limit control is used. Practically all gas-fired installations use a room temperature control and automatic safety pilots are available for use with any type of system, whether steam, hot water or warm air. Practically all of the gas-fired, warm-air furnaces have automatic humidifying apparatus as part of the standard equipment. Recently several manufacturers have produced warm-air furnaces which include blowers and filters in addition to the humidifying equipment.

Selecting the Equipment

In determining whether gas designed or conversion equipment is to be used on a given installation, it must be borne in mind that for most of the moderately-sized installations the use of fuel will be about 10 per cent greater if conversion equipment is used. Hence, it usually is best to use gas-designed equipment when making an installation in a new building. In an old building, however, one must determine whether the greater interest and investment charges encountered in a gas-designed installation are more than offset by the greater operating cost resulting from the use of a conversion burner.

In selecting the proper sized boiler or burner for hot water or steam installations, it is desirable, of course, to have sufficient capacity in excess of the radiation or heat

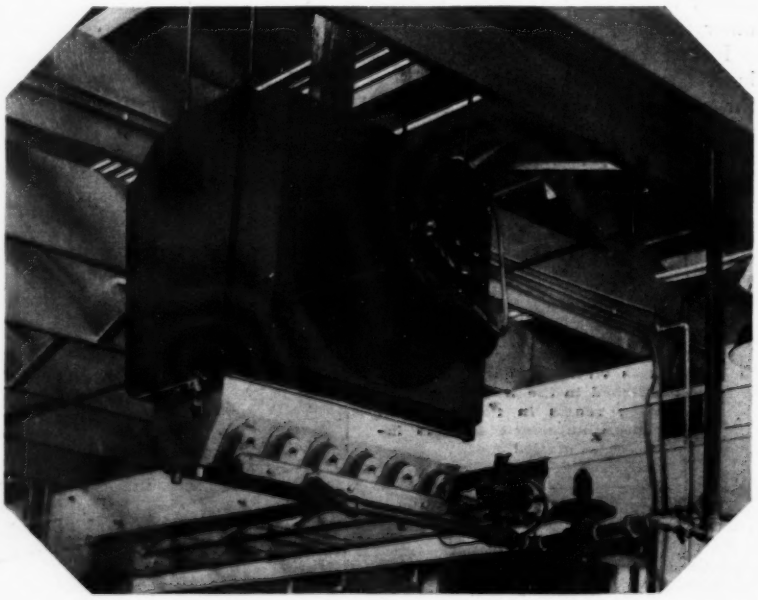
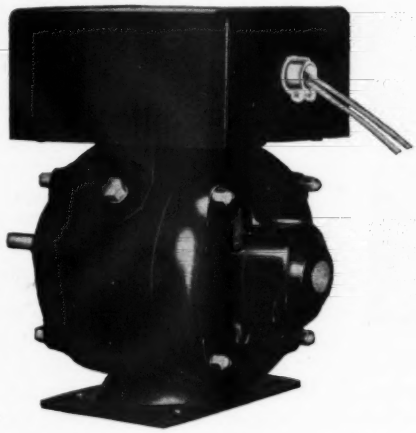
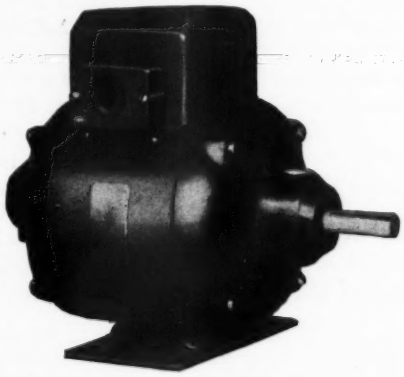


Fig. 4—According to the author, the recently-developed gas fired industrial unit heater is coming rapidly to the front as an important appliance in the heating field

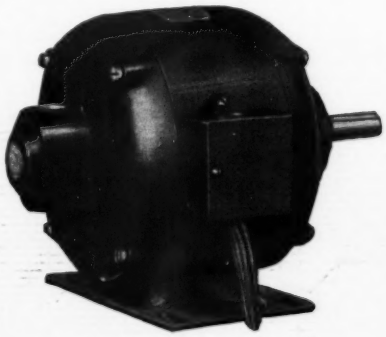
DEPENDABLE MOTORS
FOR ALL AUTOMATIC HEATING SYSTEMS



The Type KC single-phase motor with capacitor-transformer unit. Also available with separate capacitor unit



The Type KX reactor split-phase motor



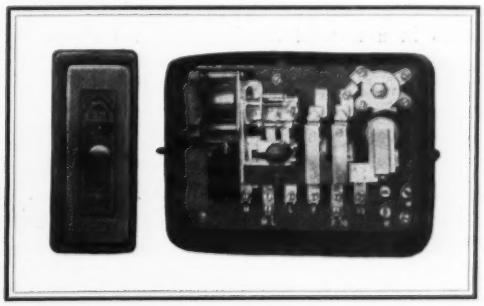
The Type KH resistance split-phase motor

GENERAL ELECTRIC offers a complete line of dependable fractional-horsepower motor drives to meet the performance characteristics of any type of automatic heating system whether it be oil, coal, or forced draft. And more, General Electric offers nation-wide service in keeping every drive "on its toes." Don't overlook these advantages when motorizing.

Back of every G-E fractional-horsepower motor are nearly thirty years of design, manufacture, and application experience. The results are reflected in fractional-horsepower motors that are simple in construction, quiet in operation, high in efficiency, dependable. Motors are available in capacitor, reactor split-phase, and resistance split-phase types.

Remember, that whether you use standard or highly special motors, General Electric application engineers will be glad to help you solve your drive problems, just as they have successfully solved those of others. Try G-E motor service to-day; there's a G-E office near you with complete information on G-E motors for your particular requirements.

In addition to a complete line of fractional-horsepower motors, and of transformers, cable, etc., to meet automatic heating requirements, General Electric manufactures control equipment for the modern oil burner. This new control utilizes a Telechron motor drive for timing regulation, hence there is no clock to wind or regulate. In the thermostat, a patented preheat coil prevents "overshooting" or "lagging" of the room temperature. Heat control of G-E manufacture is marketed by the Penn Heat Control Company.



210-145

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N.B.C. NETWORK

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

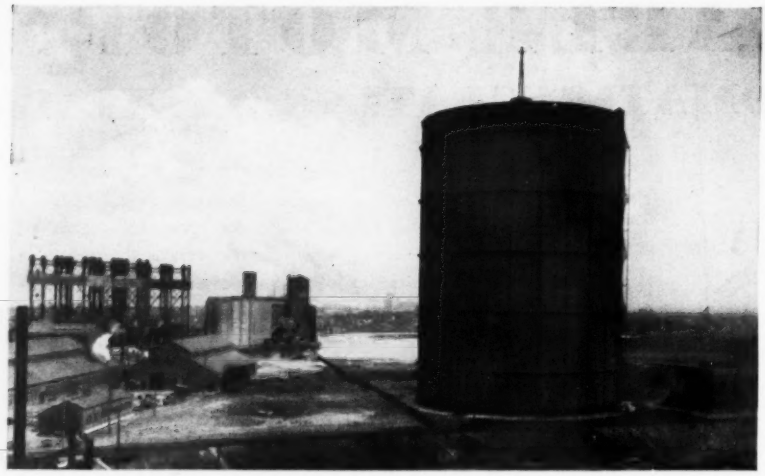


Fig. 5—This shows the new or waterless type of gas holder. This type is in use in capacities up to 20,000 cu. ft. The floating piston on the inside of the holder is sealed with a stream of flowing tar

loss requirements to heat the building quickly in the event the room temperature is permitted to get too low.

Table 1 gives the selection factors recommended by the *American Gas Association.* This table indicates the amount to be added to the equivalent direct steam radiation and a boiler or heater of the nearest higher *American Gas Association* rating would be selected as having the proper capacity.

TABLE 1—SELECTION FACTORS FOR GAS BOILERS

RADIATION LOAD (SQUARE FEET)	SELECTION FACTOR
100	0.56
500	0.56
1000	0.523
1500	0.486
2000	0.45
2500	0.437
3000	0.424
3500	0.412
4000 (and over)	0.40

Estimating the Cost of Heating with Gas

A very important item, particularly where manufactured gas is the fuel, is the cost of operation. This may be determined by calculating the amount of heat loss from the home per degree-hour, then multiplying by the degree-hours in a normal heating season (degree-days x 24). The amount of gas required to offset this seasonal heat loss is obtained by assuming 75 per cent operating efficiency for gas designed equipment and 67.5 per cent seasonal operating efficiency for conversion equipment. The calorific value of the gas may be obtained from the local gas company in each case.

The A. S. H. V. E. GUIDE 1931 expresses the foregoing relationship for a 75 per cent operating efficiency as follows:

$$G = \frac{110 \times R \times D}{H}$$

where—

G = Cubic feet of gas per season
R = Square feet of equivalent direct steam radiation (calculated)
D = Degree days per season
H = Gross calorific value of the gas (Btu per cubic foot)

Degree Days—A degree day may be said to be a day in which the average outside temperature is one degree less than the average inside temperature. The degree days for a heating season are obtained by subtracting the average outdoor temperature for the season from the average inside temperature and then multiplying this temperature difference by the number of days in the heating season. The degree days (based on an average inside temperature of 65 F.) for a number of cities in the United States and Canada are given in THE GUIDE 1931.

The cubic feet of gas must, of course, be multiplied by the average price of the gas to obtain the fuel cost per season.

In considering the cost of heating with gas it is well to bear in mind that there will be considerable variation in the monthly gas bills throughout the year. The variation will be in proportion to the number of degree-days in the different months. Table 2 indicates the proportion of the total season's gas bill which will

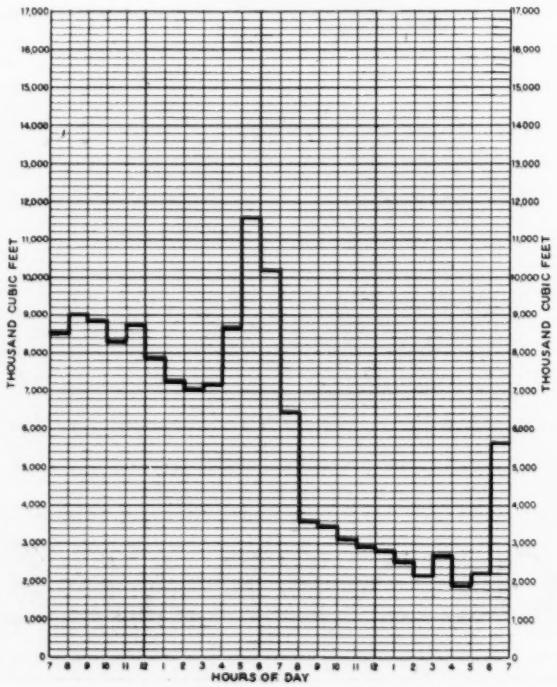


Fig. 6—Typical daily load curve showing the variation in amount of gas distributed per hour by the gas company

occur in each month of a normal heating season for Chicago. The amounts of the bills in the case of a $300.00 per year example also are shown. These variations in monthly fuel consumption are practically the same no matter what fuel is used, but they are perhaps more noticeable with gas because of the regularity of the meter reading and billing.

Needless to say, anything which reduces the amount of heat loss from a building such as insulating walls and roof, applying storm windows, keeping the room temperature as low as comfort will permit, etc., will produce a proportionate decrease in the gas consumption and is recommended for use.

TABLE 2—RELATIVE GAS CONSUMPTION AND COST* IN CHICAGO FOR VARIOUS MONTHS OF HEATING SEASON

	Relative Gas Consumption Per Cent	Relative Cost
October	5.2	$15.60
November	12.0	36.00
December	18.1	54.30
January	20.6	61.80
February	17.5	52.50
March	14.8	44.40
April	8.7	26.10
May	3.1	9.30
Total	100.0	$300.00

* Based on $300.00 per year example.

Installation of Equipment

Gas-fired boilers for steam and hot water heating systems may be cross connected with boilers fired with other fuels, if so desired. See Fig. 3. In many instances cross connection is to be preferred, for it gives the user a means of disposing of boxes, papers and other basement rubbish.

When cross connecting steam boilers, it usually is advisable to completely valve off both boilers, but with hot water systems the placing of gate valves in the return pipes leading to the coil boiler is sufficient in most cases to stop any circulation of heated water through the coal boiler.

In making gas-fired installations, it is important that any faults in the old heating systems be remedied. This is desirable for two reasons; *first*, users are wont to blame the new equipment or the fuel for faulty operation of the heating system; and *second*, some faults are often accentuated by the use of gas as a fuel and, therefore, become much more noticeable. Poor venting of the air from steam heating systems, for example, is more noticeable with gas because of the fact that the gas, when burning, usually is burning at its maximum rate and builds up steam pressure quickly. If the air vents are not functioning properly, the burner will be shut off by the pressure limit control due to air pressure rather than steam pressure.

Not infrequently, such changes may be made in a heating system that gas will be given credit for being an even better fuel than it deserves. For example, it is not unusual to find a warm air heating system with altogether inadequate cold air return piping—perhaps just one small sized cold air pipe having an opening to the out-of-doors. If, then, in making the gas-fired installation this cold air pipe to the outside is cut off and an adequate amount of recirculating cold air return piping is installed, the resulting improvement will make the user a strong booster for gas heating.

Chimney Construction Is Important

Another matter of some importance is that of having an adequate and properly constructed chimney. Due to the relatively large amount of hydrogen in gas, the combustion products will contain a fairly high concentration of water vapor—15 to 20 per cent by volume for air-free combustion products. The presence of this water vapor gives the flue products a dew-point temperature of about 130 F or lower, depending upon the amount of excess air. The presence of this rather large amount of water vapor in the flue products often causes some condensation to take place when chimneys or boiler breechings are cold.

In some instances this condensation is quite excessive and at the same time slightly acidic in character. If this acid condensate is formed in an unlined brick chimney in which lime mortar has been used, it is quite probable that the lime will be leached out of the mortar and, of course, the latter will disintegrate. This type of construction is seldom encountered except in old buildings, as most municipal building codes now require tile lining and cement mortar for brick chimney construction.

In cases where a chimney has started to disintegrate,

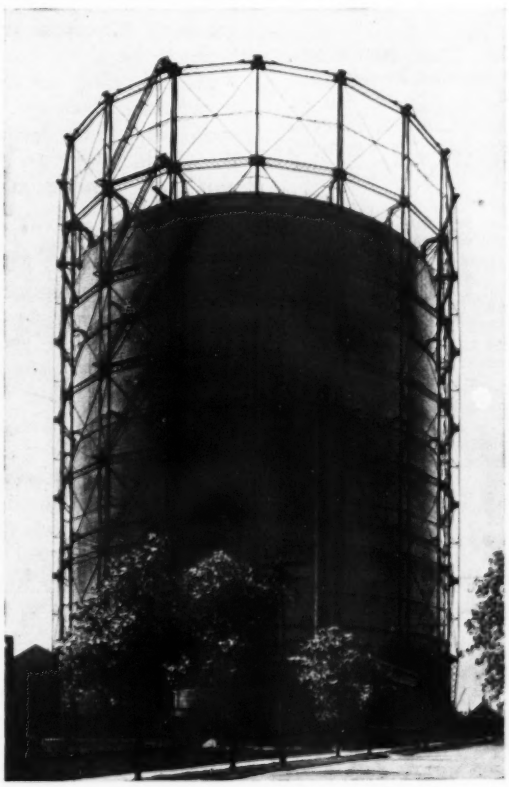
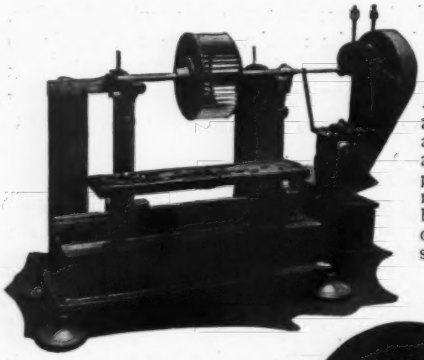


Fig. 7—This is the old water sealed lift type of gas holder

AUTOMATIC HEAT

BALANCE-



A TINIUS OLSEN Balancing Machine is a highly sensitive and very accurate piece of equipment. It gives both static and dynamic balance simultaneously.

CLARAGE Fan Wheels can be provided to meet any air volume and speed condition required, or complete assemblies in any size as shown at right. Consult with Clarage engineers.

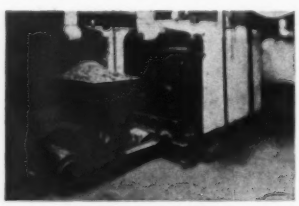
an Important Factor

THE fan furnished as part of your unit stoker installation may be a strong, rigid unit and still give you plenty of trouble. Sturdy construction is not enough—**the fan wheel must be perfectly balanced as well.**

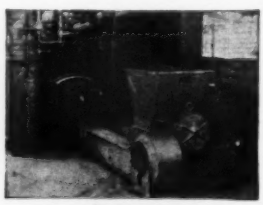
We have gone much farther than customary practice when it comes to this important question of balance. We refuse to rely on the old hit or miss hand methods for balancing Clarage Wheels. Instead, we use Tinius Olsen balancing machines as shown above, replacing human frailty with mechanical precision.

Thus, in a Clarage Unit Stoker Fan, you are assured of a quiet, smooth-running unit, free from vibration—a fan unit of extremely long life and one which does not impose excessive wear on shaft or bearings.

A Clarage Fan can be furnished on any type or size of stoker installation. Write for Illustrated Bulletin 541-A. **Clarage Fan Company, Kalamazoo, Michigan. Also manufacturers of Ventilating Fans, Air Conditioning Equipment and Allied Apparatus.**



Clarage Fan and Detroit Unistoker.



Clarage Fan and Brownell Unit Stoker.

CLARAGE
UNIT STOKER FANS

however, or where it is evident that the use of gas as a fuel is liable to cause disintegration, it usually is best to line the chimney with some corrosion-resisting material. If a chimney has no off-sets, sheets can be formed into pipe and lowered into place from the top of the chimney with a minimum of labor expense. In making this lining the male end of the pipe length should be downward so that any condensate which forms will be kept inside the lining. A drain or sump should be provided at the base of the chimney in order to dispose of the condensate with a minimum of inconvenience.

Other Types of Equipment

In addition to the appliances already mentioned there are other types of equipment which are quite suitable for auxiliary or complete heating systems.

Gas-steam radiators and warm air circulating heaters are particularly well adapted for buildings and stores where stoves have been used or where there are no basements.

Unit Heaters

The recently-developed gas-fired industrial unit heater is rapidly coming to the front as an important appliance in the heating field. This type of heater may be suspended in the space which is to be heated and air is blown over the heating surfaces and into the space to be heated without ducts or steam or water piping. See Fig. 4. Just as with the other types of space heaters, provision should be made for carrying the combustion products from unit heaters to the outside unless there is no objection to having moist air indoors.

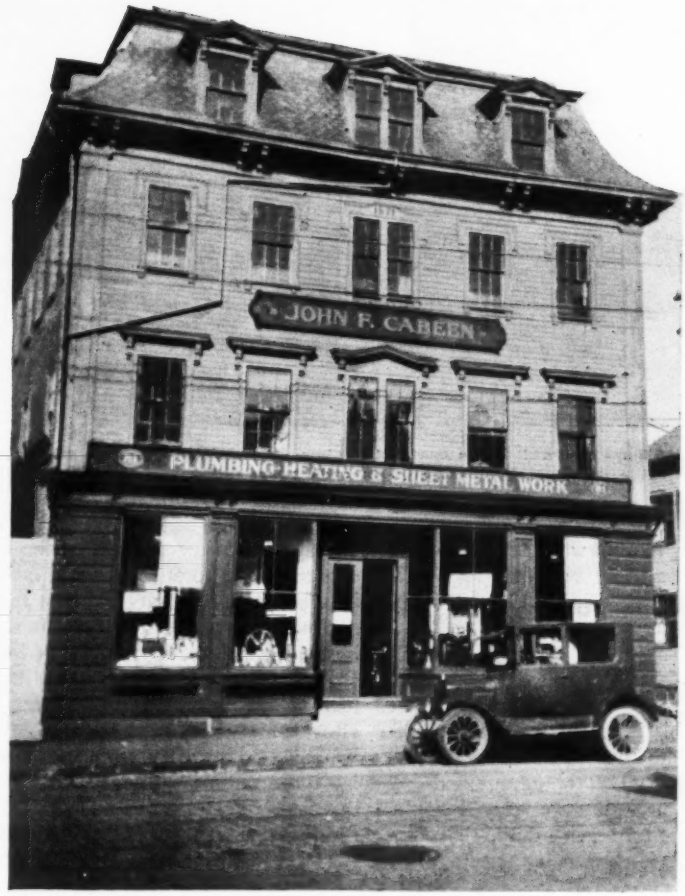
These heaters already have found wide application for use in stores, shops, factories, and in some localities in garages. Maximum economy of operation is obtained because the air is heated directly and the heat losing walls and ceiling are heated more or less indirectly. A tremendous advantage, of course, is that no floor or wall space needs to be sacrificed for the heating system where these unit heaters are installed and an adequately sized unit heater installation will heat up a cold store or shop very quickly.

Distribution of Gas

In order to absorb the peaks and valleys of the daily send-out (see Fig. 6), gas is stored in holders. In this way the generating plant or pipe line pumping stations will have a fairly steady load through the 24 hours of the day.

Two types of low pressure holders are in common use: the older water sealed lift type (Fig. 7) and the newer waterless floating piston type (Fig. 5). In both types the gas is stored under a gage pressure of about 5 oz per square inch (8 or 10 in. of water). For high pressure storage, steel tanks in the shape of spheres or *sausages* are used. Storage pressures as high as 150 lb per square inch are frequently used in this type of holder.

Gas is delivered to the consumer at a pressure of 3 or 4 oz per square inch (5 to 7 in. of water). This pressure is kept quite constant by a network of high- and low-pressure mains which are controlled by pressure regulators.



In this characteristic New England building, Mr. Cabeen carries on his selling efforts

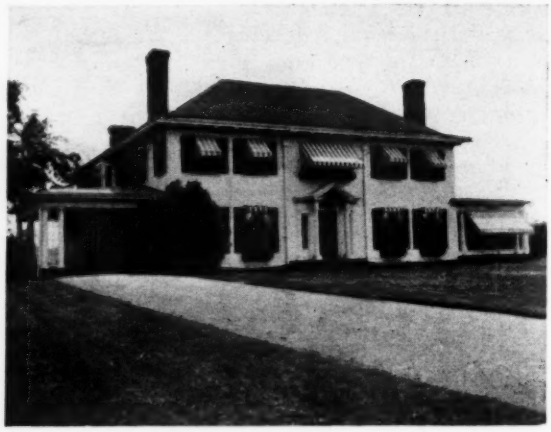
Planned Oil Burner Sales

This contractor regulates the number of sales he desires to make each year, in order to keep a proper balance and make a profit

"THE important factor in building an oil burner business is rendering service to customers, and with this in mind it is essential to keep the yearly volume of sales well within one's capacity of fulfilling that obligation economically," according to E. J. Brown, who has charge of the oil burner department of John F. Cabeen Co., 81 North street, Salem, Mass., a concern that has successfully sold, installed and serviced this product independently of the manufacturers for five of the forty years of its existence in business. This department consists of two mechanics besides Mr. Brown, who does the selling, checks heating plans to make sure they are adequate, supervises the installations, and adjusts any complaints.

"With the affording of service that is wholly satisfactory to customers it is necessary that records be accurately kept," Mr. Brown further pointed out and continuing, said, "We have a service call book in which is entered in duplicate each call. The sheets have printed on them, besides a space for the date, the number, whom

AUTOMATIC HEAT



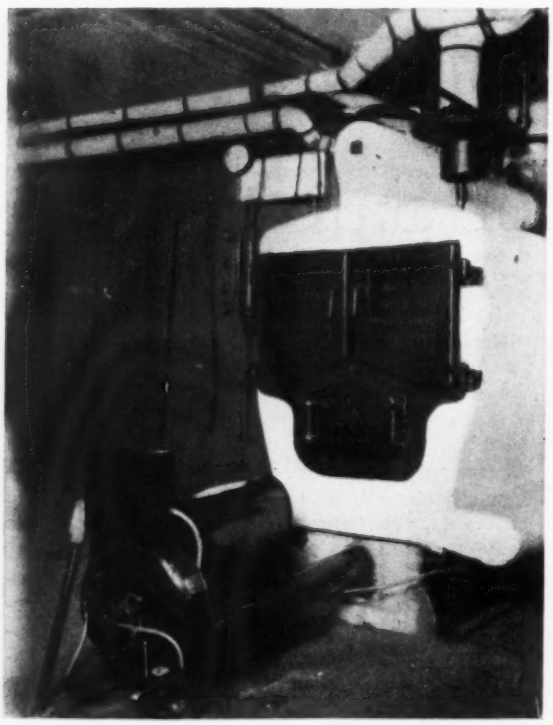
These are the types of homes at which this contractor aims his carefully planned selling effort, with a definite quota each year

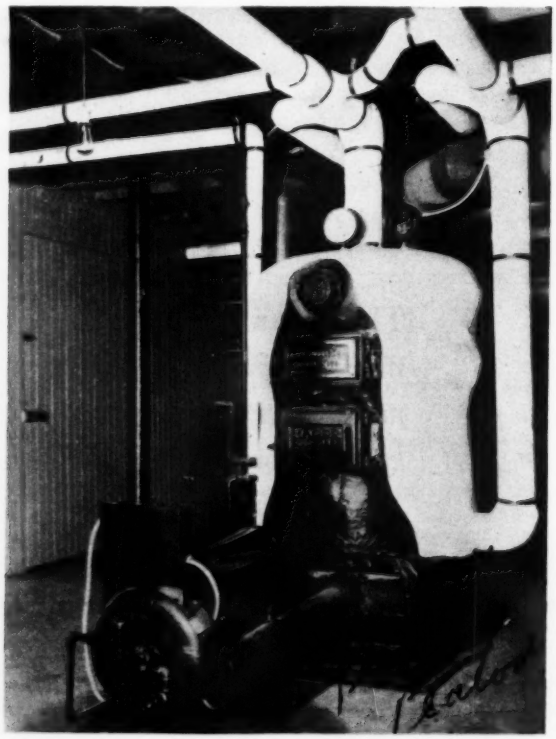
received by, time received, name of customer, address, owner's complaint, trouble found, work done, service man's name, and time of service. This information is transferred to a permanent record which is filed for any necessary later reference.

Ready to Serve

"Affording our customers day and night service, we have an alternate man at his home in readiness to respond to calls from the time the store is closed until eleven o'clock, after that calls go to the garage and any that can not wait until early morning are relayed by the night garage man to our man on service duty. This arrangement has worked perfectly on an average of twenty-five calls each week. We service burners for one year gratis; after that we make an annual lump sum charge of $25 to any customer caring to pay for service in this manner; others pay the regular amount for the services of a mechanic. Of our some four hundred oil burner customers, approximately ten per cent pay the flat price for service. Rather than increase the number of men in our oil burner department we regulate our sales effort to dispose of about seventy burners each year. Were we to go after more business it would mean adding more salesmen, thus increasing the cost of operating this department and the added volume would not give us the proportionate profit that we now enjoy. Then, too, this way we have better command of the situation with

And these are typical installations of oil burners to heat the kind of New England home that is shown in the photographs above





regard to prospective customers who we know are in a position financially to pay for a burner and its servicing after the first year. The signing of a contract, the installation of the burner, and the collection of payment does not end our contact with a customer; on the contrary, we want every customer fully satisfied and rely

BUREAU OF HEAT RESEARCH

I am taking a census of Heating Equipment for the Bureau of Heat Research. Would you be kind enough to inform me what kind of

fuel you use?.....

Name .....

Residence Address.....*Phone*.....

Business Address.....*Phone*.....

What type of heating plant have you?

Steam.....*Vapor*.....*Warm Air*.....

Hot Water.....*Other*.....

Are you interested in using any other kind of fuel?

Coal.....*Gas*.....*Oil*.....*Other*.....

By the way—
Have you an Electric Refrigerator?.....

What kind.....

Type of Home
Bungalow...*Flat*...*House*...*No. Rooms*....

Owned.....*Rented*.....

Date Interviewed.....

Remarks .....

.....

Date.....(*Signed*).....
Census Taker.

This questionnaire was filled in when presented by high school boys

on that satisfaction to get the names of friends as prospects worthy of solicitation. It is from this source that we now get a large percentage of our oil burner business."

Keeping After Prospects

Relative to keeping records of prospects, Mr. Brown said: "We use a card index in duplicate on which is entered all the information required in keeping a check on prospects, including all data concerning his heating plant, type of home, size of family, model burner recommended, price quoted, how prospect's name was obtained—place for dates of calls and literature sent out. One card is filed in the master file in the office and the other is kept by the salesman. Literature supplied by the factory is sent out at regular intervals to prospects."

Salem, a city of 45,000 population, is advantageously located so that from it approximately 125,000 people may be drawn upon as prospects without going beyond a radius of fifteen miles and, despite the fact that there are hundreds of firms offering oil burners for sale in and about Boston, which is eighteen miles away, this firm is handling profitably this branch of a plumbing and heating business.

John F. Cabeen, in replying to the question, How did you get into the oil burner business? said, "We saw its

Do You Know?

That the proved performance of Leland motors on appliances of outstanding reputation accounts for their selection for use on

Automatic Stokers—Oil Burners—Unit Heaters—Refrigerators —Water Systems

Do you know that their success is due very much to:

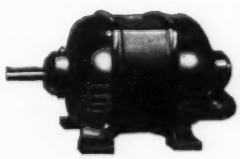
Advanced designs and greater care in manufacture than is usually observed—

Sleeve bearings that, as a part of the Leland continuous and self-filtering lubricating system, eliminate bearing troubles almost entirely—

That the Leland short-circuiting device is highly competent and long-lived—

That fast, and entirely dependable, service is available everywhere in the United States and Canada.

Learn more about the brush-lifting motors with ventilating grids manufactured by Leland for use on appliances you are so often called upon to install or service.



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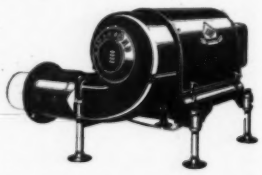
Motors

AUTOMATIC HEAT

AUTOMATIC HEAT

Are You Selling
Trouble-Free Heating Service
or Just
Oil Burners?



IT SOMETIMES happens that a dealer permits his better judgment to be sidetracked by the lure of greater profits. He takes on the so-and-so oil burner and earns the profits—only to see them dissipated by repeated service calls.

The Branford Automatic Oil Burner, made by The Malleable Iron Fittings Company of Branford, Connecticut (founded in 1864), offers and delivers even, dependable, *trouble-free* heating service month in and month out, year in and year out.

Holders of the BRANFORD franchise operate with complete confidence in their product, for they know that this Company stands squarely in back of every Branford Oil Burner sold, and back of the Company is a 67-year old reputation of fair dealing and dependable products.

We are interested in hearing from responsible dealers.

THE MALLEABLE IRON FITTINGS CO.
Dept. 40 :: Branford, Conn.

BRANFORD
OIL BURNER

Continue to get this service!

Thousands of automatic heat dealers have found the first few issues of AUTOMATIC HEAT filled with the kind of merchandising, technical and financial information that they want.

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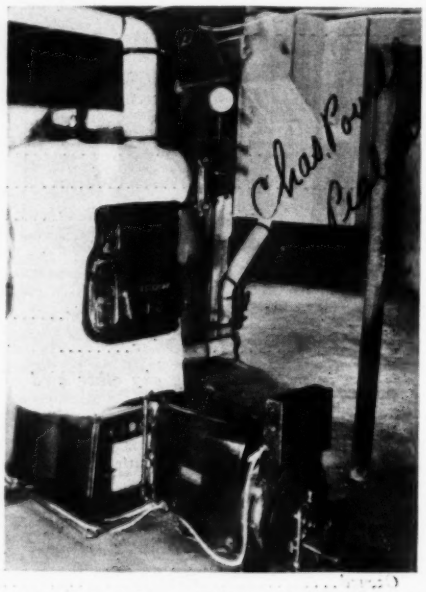
Domestic Engineering
1900 Prairie Ave. Chicago

possibilities; we decided to secure the agency for a burner; we looked the field over carefully; decided upon one we thought was best; my son went to the factory for a week after we had made a contract with the manufacturer and learned all about its construction. We of course began by selling them to our old customers and



Another Cabeen oil burner installation

after we had disposed of about fifty struck a snag which might have resulted in a substantial financial loss if we had followed our first inclination, when servicing began making demands on our time, to give up that end of our business and remove burners from the homes of any of our customers who were not satisfied.

Creating a Service Department

A great many contractors taking on an oil burner reach this point, but we solved it by deciding to create a distinct department to handle that phase of the business. We did so by choosing two of our forty men and substantially making them oil burner men. Later my son relieved himself of conducting that end of the business and we employed Mr. Brown on a salary and commission basis. We pay him commissions on all sales beyond a $35,000 volume. We had to decide to go into oil burner selling in a serious way or accept the other alternative, because after many years of building a business and reputation I couldn't afford to allow a few oil burners to wreck them when a real service department was all that was required."

Later Charles F. Cabeen said substantially what his father and Mr. Brown had said, but went into the matter of advertising and building a prospect list more fully. He said, "Some time ago, at a cost of about $300, we employed a group of high school boys to visit the homes of people in selected sections of the city and with a printed pad under the heading of Bureau of Heat Research made records of the type of heating plant, kind of fuel used, whether or not interested in any other kind of fuel, whether or not the home contained an electrical refrigerator, kind, type of home, owned or rented, etc."

"You are to be congratulated...

on the new editorial service you have instituted in DOMESTIC ENGINEERING, under the title of AUTOMATIC HEAT and also in the fine way this subject has been treated in the first few issues.

"We believe this section will immensely increase the interest in DOMESTIC ENGINEERING and will, at the same time, render a real service to the heating trade at large."

Lyle C. Harvey, Sales Manager
The Bryant Heater & Mfg. Co.,
Cleveland, O.

Editor's Note: Thank you, Mr. Harvey, and if you could see the response we've had from automatic heat dealers on AUTOMATIC HEAT you'd agree that it has "gone over" with a bang. Letters like the one below have come in daily since AUTOMATIC HEAT first appeared.

"We certainly appreciate.....

the section on automatic heat that you have put out and our whole sales force is busy chewing up every bit of it.

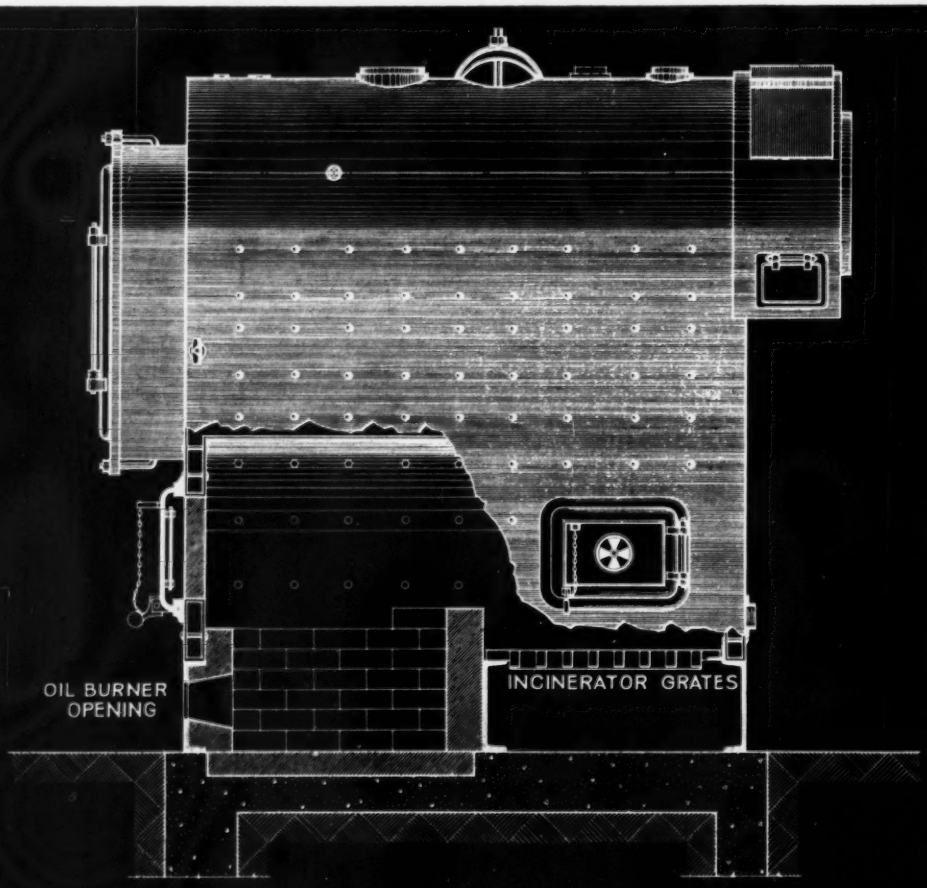
"We believe that automatic heat will jump ahead by leaps and bounds in the next few years."

Earl M. Patterson,
Wilshire Plumbing & Heating Co.,
Akron, Ohio

Editor's Note: We're glad you like AUTOMATIC HEAT, Mr. Patterson, and we agree with you entirely on the other.

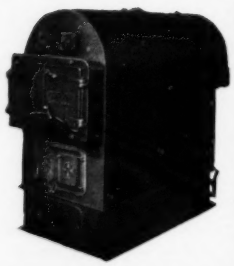
WE'RE grateful for all the letters we have received on AUTOMATIC HEAT and we'll be glad to have your further inquiries about what type and make of automatic heat is best for you to sell in *your* community. Write us at any time.

AUTOMATIC HEAT
in
Domestic Engineering
1900 Prairie Avenue Chicago, Ill.



Whatever the Fuel or Firing Requirements
BURNHAM
Makes the Boiler

Here is the Burnham 3-Purpose Welded Steel Boiler, shown arranged for oil burning and hot water heating. Note the grates for incineration at the back, with side feed door. Hot Water Supply Coils are placed above the tubes. Burnham Welded Steel Boilers are made in over 80 sizes, to burn all fuels.



Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all principal cities of the United States and Canada

Collections

This article, which is the fourth in this series, is a thoroughly interesting and lively description of

Personalized Collection Methods

By HELENE E. GAINES

Miss Helene E. Gaines

THERE is no part of our business so important, in my estimation, as the collection of our accounts. I know that if I do not keep right after them we will feel the effects suddenly. If we get neglectful and allow any accounts to drag along it will weaken our business ambitions and keep us doubtful of new prospects and we lose confidence to a great extent in future business. So, after thoroughly studying the matter over, I decided that if collections were not good our business would not be good; and it was not up to the people altogether but rested largely with me, as I had assumed the obligation of collecting our accounts. I felt that it should not be a drudgery, but a pleasure, for me to go after our accounts. I felt that the stability of our business, the morale and conduct of our whole organization, depended largely on my successful collection of our accounts. I was fully confident that I could collect all of the dragging accounts and was determined to go after them in every imaginable way until I cleared our books of all backward accounts.

Some Lively Experiences

I had several very interesting experiences but have always received payment of all accounts. I know that I have taught some people something worth while, as well. One gentleman who held a public office, a good position at a good salary, had our company do heating work at his residence. When the work was finished we were just to send the bill and he would take care of it. I suppose he did, for I sent him quite a few and he never returned any of them as I had expected him to do, with a check attached. It took me about four months to collect this account. I mailed him, called at his residence, and he would "stall" me off in a very dignified way. I telephoned him at his residence, also at his office, and he would answer "I'll attend to it," and quickly hang up. When I called at his office, there would always be public office holders and business men there. He would try to speak easy to me and ask me to one side, and make me promises. I had enough of his promises, I told him

"I was determined to go after them in every imaginable way until I cleared our books of all backward accounts."

loud enough to be well heard, and that I came to get paid and not for any more promises. The publicity had its effect for he arranged to pay the next day, and he did pay.

We had a phone call from a church. The weather was getting cold and the heating plant needed work badly—parts of the boiler were cracked and other repairs were necessary. Our estimator gave a very close figure, as we favor churches as much as is possible to do so. The account was about $150. The representative of the church said that the account would be paid in cash shortly after the work was finished and the board could act on it. It took about nine months to collect this cash account (and they did not want the time payment idea). I mailed statements and called in person to collect this account and always received good promises. Finally I de-

cided to investigate and find out who some of their active members were. I called on them and had them make arrangements to settle this account. It was beyond my understanding why business men could apply business methods out of church and not apply the same rules of business in church matters, I informed these members. They seemed to like my frankness as we have received work from the different members.

Credit Reports Used Effectively

Sometime ago a lady, supposed to be wealthy, having a fine home in a desirable neighborhood, ordered work done by us. We received information as to her paying habits and found that she had no overdue accounts for the past year or more, but previous to that she had several accounts which were unpaid. I called in person and informed her that we would be pleased to do her work but she would have to pay us cash one-half in advance upon delivery of material and balance when work is finished. Well, she just went all up in the air and said

"If our firm had always made use of the credit association records we would have saved ourselves much trouble."

that was ridiculous to propose such a thing to a lady in her standing.

I told her those were our terms and that she was at liberty to select some other firm to do her work, and that we had the same privilege in selecting how we were to be paid. After cooling down some she said that she owed no one and thought that she was entitled to thirty days. I informed her of several accounts which were not paid. Then she readily admitted same, but said that they were old accounts. Yes, I said, but they are still unpaid and will be on the books of the people you owe and listed with the credit associations so that all who inquire may know that these accounts have not been settled. She told me to have our firm go ahead with the work that she had ordered and she would pay spot cash. And she did.

I later heard that, through this experience, she had paid all of her old accounts up to date. She sure seemed very surprised to learn from me of how accurately the different credit associations keep records of slow accounts, as well as those who try to hide from their creditors and not pay at all. I told her that it was not unusual for us to be called on to give the paying habits of some of our customers and that we state the facts in each case. Of course poor payers are denied credit at places of business when they are applying for necessary merchandise.

If our firm had always made use of the credit association records we would have saved ourselves much trouble and inconvenience. It would have kept us from troubling slow paying customers because I sure did trouble some of them pretty much. I certainly did jar them loose from some of their old traditions.

I have never, as yet, given up hope of collecting every account owed to us. In fact, I take much delight in getting them in. I keep right after them and never let them rest until they pay us. I never allow any hatred, revengeful, or resentful thoughts to enter into my collecting, but I do insist firmly that they have what rightfully belongs to our firm and that I intend to have them settle their account. I do not hesitate to tell "dead beats" that I will use all possible ways, tactics, and methods until they pay up. In sending out collection letters I always send a separate personal letter, or statement, to reach the destination in the same mail which the collection letters are delivered.

It is not unusual, if we have a slow account, to have as many as three letters in the same mail from different angles. I have found that they do much toward influencing the payment of past due accounts.

Keeping After an Account

One gentleman who owned several flats and dwelling houses, and also owned and managed a large down town retail furniture store, ordered some heating work done at flats he owned. He told us to do the work and we would receive the check between the first and tenth of the following month. But he did not pay as agreed. It took me five months to get this. I went through my ordinary ways of trying to get a settlement, but with no avail. Then I decided to go stronger after him. I called at his store and informed him that I intended to be his daily guest until he paid his account. He thought it funny at first but was thinking more serious after I had stayed four full days at the store. He tried to blarney me usually and tell me to go out to our place of business and find something better to do, and he would pay up all right. I refused to go. Each time a customer came in his store I would present my statement and tell him that this account must be paid, as it was past due, and I proposed to stay there until it was paid. He was very much annoyed at times and tried persuasion, bluffing, and even bull-dozing. I just ignored his tactics. He phoned our office, at different times, trying to get me called off of my endurance stay. On the evening of the fourth day he paid his account in full. After he paid he wanted to see if he could hire me for his collector. He said that he could easily pay his accounts more promptly if he had a collector like me.

After this experience with this gentleman our firm did quite a few other jobs for him. We found that he was well known for his slow-paying habits, but he seemed to like our high grade merchandise, workmanship, and our ideas of collecting our accounts. But on all work done, after the one experience, we arranged for him to leave the price of the job to be done with his tenant where the work was to be done, and he did it. He complained and hesitated occasionally about handling it this way but when he found that it had to be this one way, or no work done, he conformed to it.

Modern credit associations are surely a blessing to heating contractors as the cost of membership is certainly insignificant when we realize what money and time can be saved in looking up bad risks and not doing the work until we know when and where the cash is coming from

A man, who was foreman in a factory, had us do work for him and he set his pay day as the date when he would settle the account. But he did not pay it then. I tried, for several weeks, to see him personally to collect but he was always slick enough to keep me from seeing him. Finally, I inquired around his neighborhood to see if anyone knew where he and his wife spent their evenings and one lady informed me that they attended a certain lodge twice a month. I called at this lodge on a

MALLEABLE·IRON·FITTINGS

The difference between an old house and a new one is *good* plumbing. We have added the word *good* for a reason. Just any plumbing won't help matters. Good equipment is as necessary to plumbing as plumbing is to the house. The fundamentals of good plumbing are good pipe and good fittings. M.I.F. Fittings have proven themselves time and again capable of rendering the highest service.

Use M.I.F. Fittings on ALL your modernization jobs.

M|F

MALLEABLE · IRON · FITTINGS · COMPANY, BRANFORD, CONN.

CONCO
TEMPERATURE CONTROL VALVES

CAN BE SOLD TO SIX *of* YOUR CUSTOMERS—RIGHT NOW

CONCO Temperature Control valves will create new business for you—now. For we know that there are at least six building owners or managers in your own town who, if they were told the complete Conco story, would order them installed at once.

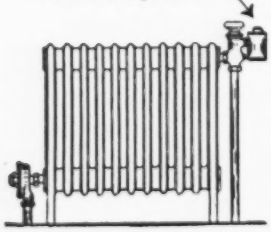
Conco Temperature control valves are in tune with the times. They result in a saving of fuel, at the same time insuring great comfort and healthful conditions.

Automatically operated, Conco valves are an inexpensive and accurate device for the economical control of temperature.

They are installed on the radiator like an ordinary valve and regulate the flow of steam to each individual radiator so that the desired temperature at which the valve is set—and no more—is at all times secured.

Thus the temperature of each room can be controlled independently of every other.

Installed like an ordinary valve



Conco valves operate on a variation of one or two degrees in room temperature. They are the only type of independent temperature control valve actuated—or caused to open and close—only by the actual temperature of the air in the location where the valve is installed.

Compared to the usual type of remote or pneumatic system of temperature control, the cost of equipping with Conco valves is almost negligible.

Moreover with Conco you can install one valve or a thousand. You can make as many installations—or as few—as the owner will permit.

Conco valves can be installed on any two-pipe steam or hot water system and in many instances have resulted in a saving in fuel of as high as 30 per cent.

Write for prices and complete information on this highly efficient and inexpensive method of temperature control.

CONCO TEMPERATURE CONTROL CORP.

Exclusive Distributors—Manufactured and Guaranteed by

BOHN ALUMINUM & BRASS CORPORATION

CAPITOL BRASS DIVISION DETROIT, MICHIGAN

meeting night and received permission from the men at the door entrance (one of which I happened to know) to enter. A little while before the lodge meeting and an entertainment began, I looked about and located this gentleman. He seemed very disappointed when he recognized me. I informed him of my mission and told him that if he did not have the ready cash I possibly could assist him in getting it from his brother members. He asked me to kindly wait over to one side of the hall and shortly he returned with the necessary cash. I did not lose his friendship, but our firm has been recommended by him at different times since then.

Miss Gaines Likes Difficult Collections

One of the most inspiring collection tasks we have had was when, at a time when the weather was getting very cold and snow flakes were flying about in blizzard style, we had a call from a colored church organization. The heating system was completely out of commission and prompt attention was desired. An estimator looked at the job, gave an estimate, and it was accepted. The contract was signed by the board of directors and it all looked very good. The job was for about $1,000. We phoned our regular finance company, who usually carried that kind of paper, and this finance agent thought it a fine opportunity. He told us to go ahead with the work and he would confirm it by special letter, which he did.

Our firm went immediately to work and delivered all materials and was rushing the job through when the

"I have never, as yet, given up hope of collecting every account owed to us. In fact, I take much delight in getting them in. I keep right after them."

financial agent sent us word not to do the job as he had investigated more thoroughly and found entirely too many mortgages plastered on the church building, besides many other debts, and the signers of the contract were poor risks. Our firm was into it and could not very well back out then. We could have held this financial agent, but we would not do that. We decided to have the board of trustees call a special meeting so we could discuss the situation. We met with this committee and after much disagreeing, as some wanted to hold us firmly to the deferred payment contract that was finally rejected by the finance company, we finally had them agree to select a desirable committee and make an application to borrow from a regular loan company. They tried it, but selected men with poor credit rating, and were rejected. Meanwhile, our company kept right on getting ready to give them heat. The committee then seemed to be at a standstill and did not know what to do. We suggested that they take up collections at each church meeting, also get up an entertainment, and they could possibly pay it off in a short time. They finally agreed to do this, and for several weeks we attended this colored church, regularly at each meeting, and insisted that lots of persuasion be used to get this money. It worked out very well, as all was collected but about $300. We looked up members of the church who were business men and able to help, so after much parley with them we had them pay us and take a note from the church board for their money. It was so near to warm weather when we received this balance of $300 that we were grateful, as warm weather might have had some effect on stagnating the flow of cash to us.

A building contractor gave us a $300 job and did not pay for it as he agreed. I kept after him at his office, in person and by phone, but could never reach him. He stayed away from his office and would phone in for his orders from an office girl who had her desk in the hall of the building and attended the calls for several tenants of different offices. At his residence he was never at home, even when he was at home he was "not there." After chasing him for several weeks I saw his business sign on a building where he was doing some remodeling. I called on the owner of the building and told the owner all the circumstances of the account which he owed our firm. The owner happened to be "made of the right kind of stuff" for he called this contractor and told him that if he expected to be paid that he should pay up his own account. He said it in such a way that arrangements were made for the settlement of this account.

Proper Selling to Cut Losses

Since our firm has fully co-operated with the credit bureaus and realized that in the selling, if properly sold, collections are not so difficult and we are fast eliminating most of the troubles of hanging onto the slow-payer's coat tail to get what rightfully belongs to us. Whether we sell on cash or deferred payments we do not care to deal with slippery people. When a prospective customer calls us we do not hesitate to make all inquiries that are necessary to know that our dealing with this prospect will be on the basis of fair bargaining, truthful agreements, and honest settlements. If it does not look that way to us we do not want the job.

I feel that within the next two years most all of the heating contracting business will be conducted along this same line of reasoning. Our idea of business is to sell on a strictly cash basis, but we realize that this can not be done in this age. So, for the convenience of those who can not pay all cash, people who are in the habit of paying as they agree to, people whose intentions are to pay and have the necessary income or ability to pay and are not living beyond their means, we gladly offer time payments. Of course we know that when we have a large volume of business, and are selling on time-payments, we will have some trouble keeping them all actively tuned up to prompt payments; but we feel that it is well worth the trouble provided we begin with the customer correctly at the start.

We have seen the very best of friends part ways by misunderstood agreement about payments and I feel that to avoid such misunderstandings thorough investigations should be made of each applicant desiring work done, and no guess work.

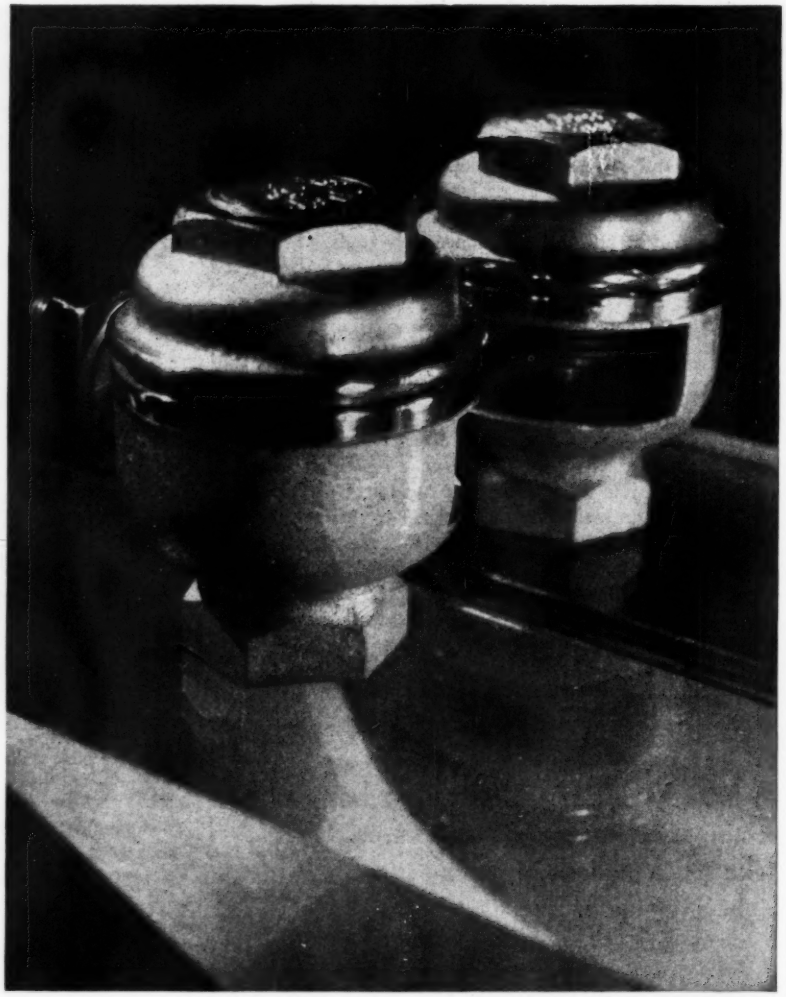
Do they pay what they agree, or do they not? Do they pay promptly or drag along until forced to pay? Do they beat a merchant, then search for another sucker who is not wide-awake to such "dead beats?"

Getting Credit Information

I have our prospect fill out a paper of reference giving a business reference, bank reference, relatives, character reference, the fuel company they trade with, other firms which they deal with, and as much other information

(Continued on Page 135)

Why Thermoflex TRAPS *are immortal*



They will outlast the radiator —and even the building itself. Its Hydron bellows will open and close tens-of-millions of times with no signs of giving out.

And that is true of each and every unit. The revolutionary method of forming the bellows avoids all factors which might cause failure—human, metallurgical and manufacturing.

By surviving an internal pressure far greater than the bellows will ever be given in use, each unit is *self-inspected* and *proof-tested* in the making. Never before could a trap be pre-tested by an infallible method. The Hydron bellows is in every Thermoflex radiator trap, drip trap, offset trap and high pressure trap.

Years of unfailing service in all types of buildings and under severe and varied conditions have proved their unfailing value, their uniformly high quality.

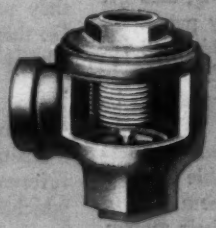
HANGERS

FITTINGS

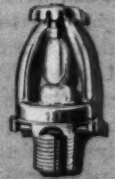
Pipe fittings, cast and malleable, perfectly threaded, accurately machined and rigidly inspected. Pipe hangers adjustable after the pipe is up. Reduce installation costs and maintenance expense.

This trap, with the famous Hydron Bellows, will operate a radiator for a lifetime without repairs.

THERMOFLEX TRAPS



AUTOMATIC

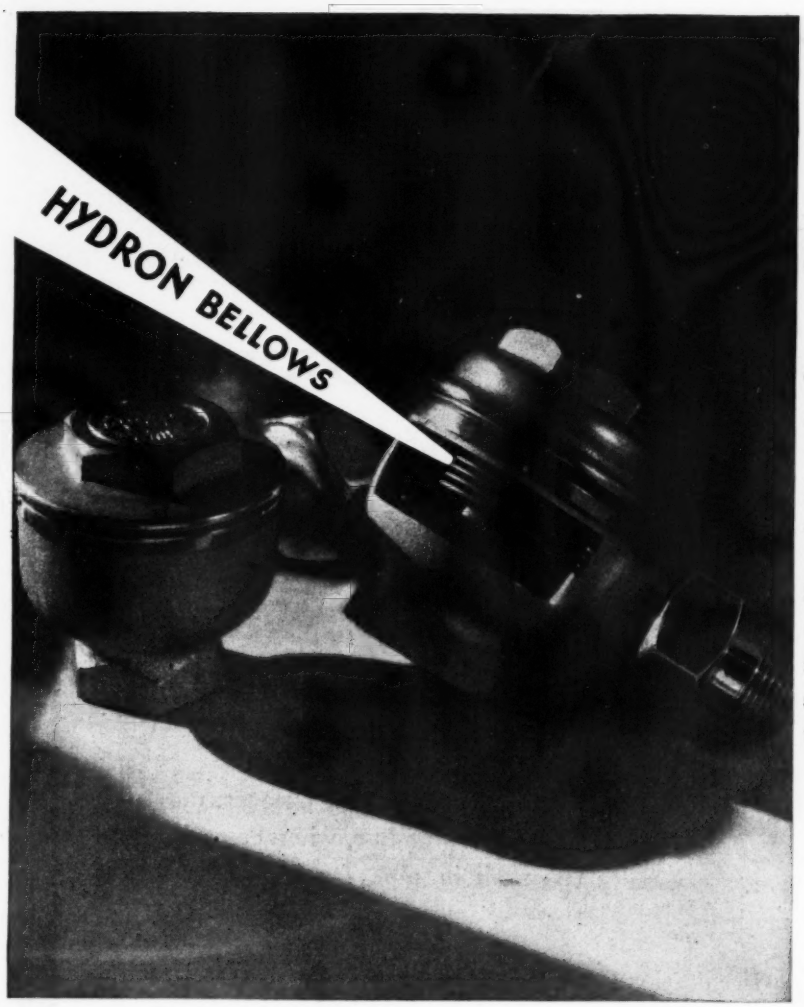


SPRINKLERS

The famous Quartz bulbsprinkler head. In most cases sprinklers will reduce insurance expense from 50 to 90 percent.

Where air dryness adversely affects processes, large savings are made by our humidification equipment.

HUMIDIFIERS



Tested in the making

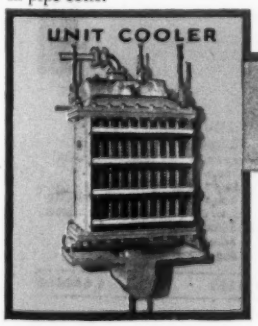
The Hydron bellows would be destroyed in the making if any weaknesses whatever existed in its structure. It is formed from a tube, by tremendous hydraulic pressure internally applied. Since the end fitting has previously been joined to the tube, any bellows which is not destroyed in the making can be truthfully called "immortal".

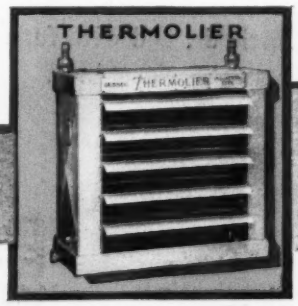
Also Certified Test by the *Pittsburgh Testing Laboratory*. One of their engineers tests each trap under *operating* conditions and affixes a certification tag.

Write for information and catalog to Grinnell Company, Exclusive Distributors. Our sales engineers will work with you to insure permanent satisfaction.

GRINNELL COMPANY
INC.
Executive Office: Providence, R. I.
Branches in all Principal Cities

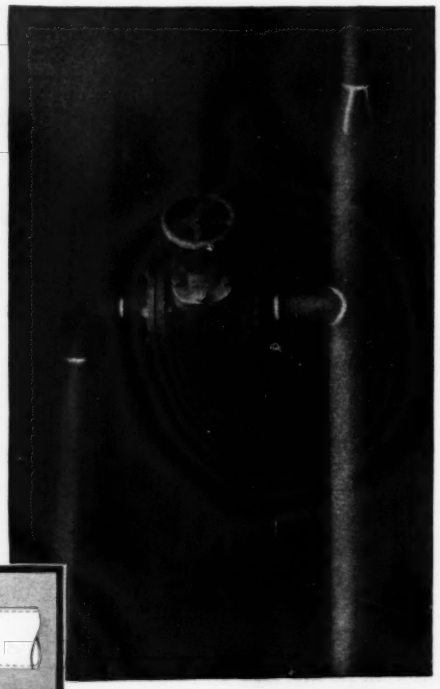
A revolutionary improvement in refrigeration. It replaces more than ten times its weight in pipe coils.





This remarkable Unit Heater is a better and cheaper means of heating industrial and commercial buildings. Heating systems can usually be modernized almost over-night, with a tremendous saving on fuel.

Pipe fabrication, lap joints, pipe bends, forged hangers and welded headers comprise the Triple XXX line for Super Power work. By modernizing to use high temperature steam your yearly savings will often run to five or six figures.



Oxwelding Reduces Radiation Losses

BECAUSE of minimized radiation surfaces, radiation losses from a welded pipe line, whether covered or not, are usually less than in pipe fabricated by other methods.

In addition to this, oxwelded construction permits more efficient insulation and consequent higher operating efficiency. It enables continuity of insulation, impossible where other means of pipe jointing are used. There is also the further advantage that the insulation once applied, will not be ruined through leakage and will not have to be removed at the joints for repairing leaks.

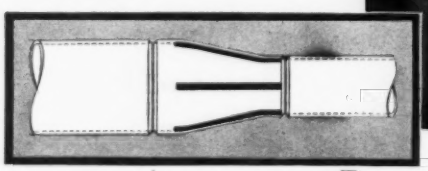
Under Procedure Control, welded piping construction may be undertaken with the same confidence in a satisfactory result as older methods, and with further assurance of increased economy and serviceability.

DESIGN STANDARDS FOR OXWELDED PIPING

Any welded piping system, even in its most complicated form, is a combination of a few fundamental welding design details.

SWAGES OR REDUCERS

Explanation of Design:
Formed or fabricated swages, both concentric and eccentric, to meet any condition, may be formed as illustrated on page



31, "Design Standards for Oxwelded Piping."

Uses:
Swages or reducers, either formed or fabricated, are recommended for all sizes, pressures and services for replacing cast swages.

Specification:
When welded swages or reducers are specified the following features should be included in the specification:

1. Templets shall be used for making cuts.
2. Cuts shall be carefully beveled and accurately matched in order to form a good vee for welding.
3. Welds shall be built up to present a gradual increase in thickness from the edge to the center.
4. Thickness at the center of the weld shall not be less than 1¼ times the pipe wall thickness.
5. The weld shall be of sound metal free from laps, gas pockets, slag inclusions or other defects.

The above is excerpted from a handbook on fundamental designs, titled, "Design Standards for Oxwelded Steel and Wrought Iron Piping," published by The Linde Air Products Company.

You should have a copy of this handbook. It is yours for the asking.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

136 Producing Plants UCC 627 Warehouse Stocks

IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

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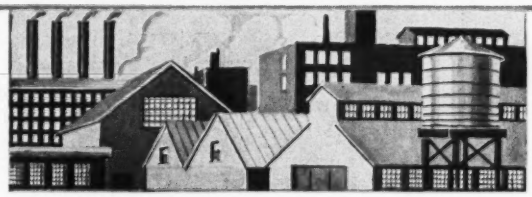
Atlanta	Detroit	New York
Baltimore	El Paso	Philadelphia
Birmingham	Houston	Pittsburgh
Boston	Indianapolis	St. Louis
Buffalo	Kansas City	Salt Lake City
Chicago	Los Angeles	San Francisco
Cleveland	Milwaukee	Seattle
Denver	Minneapolis	Tulsa
	New Orleans	

LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN



James A. Messer Co. Moves to New Building

James A. Messer Company, Inc., plumbing supply firm of Washington, D. C., recently moved into its new home, the Messer building, at 1206-08 K street North West, in that city. The new building is equipped with modern facilities for the display of plumbing materials and fixtures. The Messer company maintains its warehouses at Fourth and Channing streets.

◆

Receives Large Government Contract

The largest contract for water heaters which has ever been placed by the United States Government has recently been awarded to the Sands Mfg. Co., Cleveland, Ohio. The contract is for approximately 2,000 large automatic water heaters and is the third government contract for the company in the past two years.

The water heaters will be placed in the officers' homes in the various army posts throughout the country. The size of the order will enable the company's plant to operate at full capacity for sixty days.

Kohler Co. Opens New Showroom in Philadelphia

To better meet the needs of eastern home owners and builders, architects and contractors, Kohler Co., of Kohler, Wis., has opened in the Architects building in Philadelphia, Pa., a new showroom which offers several times the floor space formerly available in the display area in the present Kohler warehouse building.

The new showroom occupies the first floor and basement of the building at Seventeenth and Sansom streets, and is in charge of H. H. Held, branch manager. Deep show windows that reach from the ceiling almost to the floor and low-backed display panels permit an unobstructed view of the showroom from the outside. In addition, side windows in the two complete bathrooms on the first floor, as well as those in the sink display room, make these exhibits visible from the lobby of the building. Modern architectural treatment gives the showroom proper a striking effect.

There are four complete bathrooms, a washroom, a

New showroom of Kohler Co. at Philadelphia

closet display room (with all the closets shown in actual operation), an electric plant display room and a general display of bathroom, kitchen and laundry fixtures, as well as plumbing brass in the basement.

◆

Makes Change in Company Name

Announcement was recently made by Motor Wheel Corp., Lansing, Mich., that the name of Piatt Oil Burning Utilities has been changed to Motor Wheel Oil Burning Utilities.

◆

Buys Valve Business of Multi-Valve Corp.

The Ludlow Valve Mfg. Co., Troy, N. Y., recently acquired the Lee patents and the valve business of the Multi-Valve Corp., New London, Conn. Henry B. Lee, formerly of the Multi-Valve Corp., has affiliated with the Ludlow Valve Mfg. Co. as research engineer.

◆

Buffalo Steam Pump Co. Changes Name

Buffalo Steam Pump Co., Buffalo, N. Y., has changed its name to Buffalo Pumps, Inc. The change is a change in name only, all details of management and personnel remain as before. Established more than forty years ago, the business of the company has changed materially, and now centrifugal pumps constitute the major portion of its output. The purpose of the change is to fit the company's name more closely with its equipment.

◆

Enters Engineering Field

Albert B. Franklin, Inc., for almost 50 years heating engineering-contractors in Boston, Mass., has decided to devote its entire attention to engineering and has engaged offices for this purpose at 38 Chauncy street.

The company was founded in 1878 by Albert B. Franklin, the father of the present head of the company, Ralph S. Franklin, who joined the firm shortly after his graduation from Massachusetts Institute of Technology in 1902.

◆

Organization Changes Announced by Goulds Pumps, Inc.

H. W. Foulds, assistant to the president, and general sales manager of Goulds Pumps, Inc., Seneca Falls, N. Y., recently announced several changes in the headquarters and branch offices staffs of the company.

Henry L. Boyer has been appointed manager of farm-suburban sales; Henry F. Miller, manager of industrial sales; W. G. Allen, manager of engineering sales; J. B. Anderson, in charge of the "department of inquiry and estimate," and G. W. Cramer, advertising manager.

The following appointments in branch house organizations have also been made: Mark D. Rowe, formerly Eastern manager, Servel Sales, Inc., now manager of New York office; J. B. Foley, formerly manager of Goulds Pittsburgh office, now manager of Chicago office, and Fred Jones, formerly connected with Goulds Philadelphia office, now manager of Pittsburgh office.

The company has opened a new branch office at Dallas, Tex., 417 Magnolia building. Fred Hayes is manager. This is in addition to offices maintained in Houston and Tulsa.

Water and Space Heater Manufacturers Organize

A meeting of water and space heater manufacturers was held recently at Cleveland, Ohio, to organize the Water and Space Heater Divisions of the American Gas Association. The meeting was attended by representatives of manufacturers who comprise more than 75 per cent of the production in the industries.

Hartley Walker, president of the Pittsburgh Water Heater Co., Pittsburgh, Pa., was chosen chairman of the Water Heater Division. Leo Friedman, president of the Cleveland Heater Co., Cleveland, Ohio, was selected vice chairman. Frank Shuell, president of the EverHot Heater Co., Detroit, Mich., was chosen chairman of the Cross-Licensing of Patents Committee. Scott Fowler, president of the Lovekin Heater Co., was selected as chairman of the Standards of Practice Committee.

In the space heater division, George A. Humphrey, president of General Gas Light Co., Kalamazoo, Mich., was chosen chairman, E. C. Adams, president of Adams Brothers Mfg. Co., Pittsburgh, was selected as vice chairman. W. L. Sharpe, president of the Ohio Foundry & Mfg. Co., Steubenville, Ohio, was appointed chairman of the Safety Ordinance Committee. Carl Froelich, vice president of the Continental Stove Co., Ironton, Ohio, was elected chairman of the Standards of Practice Committee. Mr. Adams was appointed chairman of the Cross-Licensing Committee.

◆

Oil Burning Association Names Standing Committees

New standing committees of the American Oil Burner Association to serve until the ninth annual convention of the association next April have been announced as follows:

Executive committee: Walter F. Tant, chairman, Haldeman Finnie, E. M. Fleischmann, W. J. Smith, Earl Marr.

Membership committee (Manufacturer): Earl Marr, chairman, J. H. Hirsch, W. J. Smith.

Market research committee: L. A. Welch, chairman, John A. Berghoff, E. V. Walsh, H. B. Roberts, H. W. Dexter, R. S. Beale.

Committee on co-operation with heating industry: J. P. McCarthy, chairman, Edward J. Wohlfarth, Homer Linn, G. A. Markuson, J. T. McTarnahan, Cliff W. Presdee.

Committee on co-operation with insurance companies: R. M. Sherman, chairman, P. E. Fansler, E. M. Fleischmann, Charles A. Whitney.

Constitutional committee: E. P. Bailey, chairman, E. M. Fleischmann, George Bullock.

Technical research committee: John H. McIlvaine, chairman, H. J. G. Rudolf, T. H. Smoot, R. W. Beckett, A. J. Frame, W. C. Schoenfeldt.

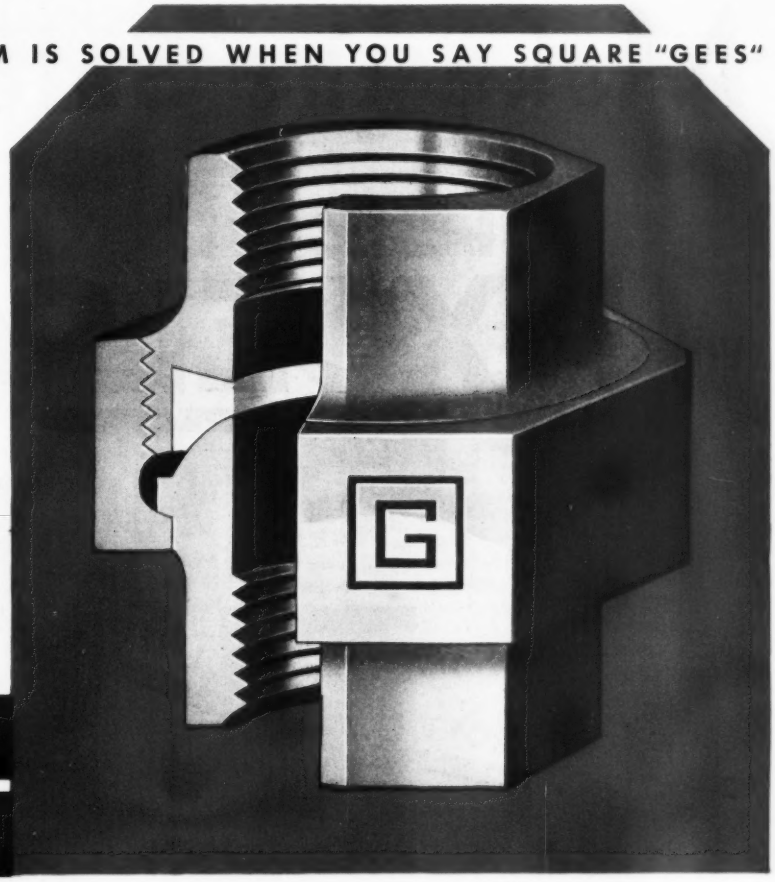
Committee on co-operation with underwriters' laboratories: W. J. Smith, chairman, A. Klotzman, W. A. Kemp, Lloyd Aldrich, E. J. Tubbs, Charles A. Whitney.

General trade practices committee: C. E. Campbell, chairman, R. M. Sherman, H. S. Frasher, E. P. Bailey, John H. Blake, Jr.

Uniform ordinance committee: Haldeman Finnie, chairman, D. B. Roberts, H. Barley, Charles A. Whitney.

Patent committee: C. H. Chalmers, chairman.

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"



TRIPLE INSPECTION

. . . . *that cuts your costs!*

BACK of the dependable uniformity of Square "Gee" Unions (and fittings too) stands three searching inspections: (a) as the union parts come from molds, (b) individual inspection of each part after machining and (c) a final inspection of the assembled union.

By this triple care Grabler makes sure each Square "Gee" Union is free from defects or flaws. That is why Square "Gees" speed up your work, cut down your costs, insure a better job.

This triple inspection is one more reason why your fitting problem is solved when you say Square "Gees."

THE GRABLER MANUFACTURING COMPANY
6565 BROADWAY ·· CLEVELAND, OHIO
Warehouses: NEW YORK · CHICAGO · LOS ANGELES · SAN FRANCISCO

The SQUARE "GEE" *Line*

STANDARD AND EXTRA HEAVY MALLEABLE FITTINGS . . . STANDARD AND GROUND JOINT UNIONS . . . RAIL FITTINGS . . . STANDARD CAST IRON STEAM FITTINGS . . . STANDARD AND PATENTED CAST IRON DRAINAGE FITTINGS . . . STANDARD AND EXTRA HEAVY BRASS FITTINGS . . . BRASS UNIONS . . STEEL AND BRASS NIPPLES . . HANGERS . . FLOOR AND CEILING PLATES.

SQUARE Pipe

"GEE" Fittings

MALLEABLE, CAST IRON

DRAINAGE, BRASS

Make the Sales Curve Rise Now with EXCELSO INDIRECT WATER HEATERS

YES, there is something that can be done about this business of Summer Slumps. It takes a little selling effort but it gets the old sales curve rising in the direction you like to see it go. Here's the prescription.

It's none too early to go after inspection and reconditioning work on heating plants. You'll find plenty of it, if you look for it. Then tell every owner you come in contact with just how easily an EXCELSO Water Heater could be installed on his heating plant to provide unlimited hot water at practically no cost during the entire heating season. Talk EXCELSO Indirect Heaters for steam or vapor heating plants and EXCELSO Direct Heaters for hot water or warm air.

The EXCELSO economy story together with EXCELSO convenience can be a source of profit the year 'round if you put it to work for yourself. Any building, new or old, large or small, means a prospect for EXCELSO selling.

Why miss such a good opportunity? Write for details, today.

EXCELSO PRODUCTS CORPORATION
57 Clyde Avenue **Buffalo, N. Y.**

Stocked and sold by Leading Wholesalers and Boiler and Radiator Manufacturers Everywhere

For Extra Profit Remember

EXCELSO KLEARWAY VALVE
PATENT PENDING

Should be installed on every hot water supply system at the lowest point to provide for the cleaning of rust and sediment from tank, heater and feed lines. This single unit serves the same purpose as the two gate valves and draw-off cock usually recommended and offers additional safety as well, since with Klearway the circuit is never blocked. Made in ¾" and 1" sizes. Write for details.

SIZES TO HEAT WATER FOR ONE FAMILY OR ONE HUNDRED

Announces New Merchandising Plan

Editor, DOMESTIC ENGINEERING:

We desire to put in operation a merchandising plan which will give equal opportunity to both the small and the large distributor, eliminate price cutting, will not permit of secret rebates, provide a sound market basis on which our distributors may sell our products, and make profit for them as well as ourselves.

We have made a careful study of the merchandising plans used today in various branches of business and it is our opinion that those industries employing published gross price lists, to which may be applied discounts which are changed from time to time to take care of the fluctuations in cost of raw material and labor, have the soundest foundation on which to do business under approved trade practice rules.

Firmly believing in this method of merchandising, our company has published a gross price list that is contained in our new catalog and the discounts presently applying to the gross list are shown on a separate sheet.

In our new merchandising plan we will give an additional discount for purchases grouped in quantity of pieces of total value. This discount can be obtained by either of two methods.

Plan "A" *requires specified quantities in a single shipment.* Wholesalers will be billed at list prices less discounts as indicated on the discount sheet.

Under plan "B," there is *no requirement of specified quantity in a single shipment.* The additional discount will be allowed to a wholesaler whose shipments amount to $250 or more in a period of three months, not including brass pipe. He will be credited at the end of the three-month period.

An advantage of Plan "B" is that it gives the wholesaler a stock turnover four times during the period of a year.

For some time past, as you know, many of the prominent and influential men in the plumbing industry have been endeavoring to bring about beneficial revisions in the merchandising practices of the various branches of our trade.

The primary object has been to locate the causes for the lack of profit in the industry which is felt alike by the manufacturer, wholesaler, plumber and contractor.

Various reasons have been advanced for the existing unsatisfactory situation, the chief of which have been:

1.—Overproduction of plumbing goods.
2.—Reaction from excessive building programs.
3.—Ruinous reduction and cutting of prices.
4.—Unfair trade practices.

Each of these factors, undoubtedly, has had its part in bringing about the present unsound condition in the industry and all are possible of much better control.

Unfair merchandising practices and ruthless price cutting, in particular, have been stressed as the influences which steadily have brought profits down to the vanishing point during the past few years. The situation has emphasized the need of resort to the adoption of trade practice rules, sponsored by the Federal Trade Commission, and has brought prominently to the attention of the industry the existence of that form of "price discrimination," condemned by Section 11 of the Clayton anti-trust act, and, latterly, clearly defined in federal court decisions in the so-called "American Can" cases.

Our industry is endeavoring to develop more nearly applicable interpretations of proper merchandising principles, but, no matter how sound the principles or rules, the condition can be improved only by honest, straightforward business conduct on the part of each individual doing business in the industry.

Our company is in complete harmony with the efforts being made to bring about a betterment of conditions in the industry through the adoption of principles which should underlie sound merchandising.

Yours sincerely,

Scovill Manufacturing Company,
Plumbers' Brass Goods Division.
(Signed) W. W. Bowers,
Assistant Secretary.

◆

Dedicate Memorial to Founder of Duriron Co.

A memorial flagpole to Peirce Davies Schenck, founder of The Duriron Co., Inc., Dayton, Ohio, was dedicated by the employes of the company, recently.

The concrete base was designed by Dale Augsburger, member of the Dayton office, and carries a tablet cast in a chrome-nickel-silicon alloy steel developed by Mr. Schenck. The tablet bears the inscription: "Erected to the Memory of Peirce Davies Schenck, Founder of The Duriron Company."

Photograph taken at dedication of memorial flagpole to Peirce Davies Schenck, founder of the Duriron Co., Inc., Dayton, Ohio

The dedication address was given by Wm. E. Hall, New York City, who succeeded Mr. Schenck as president of the firm. The acceptance speech was made by Robert C. Schenck, son of the founder, and secretary.

Charles Sheeley, machine shop foreman, gave a brief history of the company and his recollections of Mr. Schenck after fifteen years of association with him.

◆

Armstrong Cork Co. Consolidates Cincinnati Branch Offices

All the Cincinnati, Ohio, branch sales offices and warehouses of the Armstrong Cork Co., Lancaster, Pa., have been consolidated at 232 West Seventh street. The move, which brings together sales divisions that have previously maintained separate offices, was completed July 20th.

Death of Oliver P. Simler

Oliver P. Simler, vice president and general manager of the Hoffman Heater Co., Louisville, Ky., died on July 7 at St. Anthony's hospital, in that city, where he had undergone an operation. Stricken ill three weeks previously, Mr. Simler was taken to the hospital and a week later underwent an operation for gall bladder trouble. He was in his 50th year.

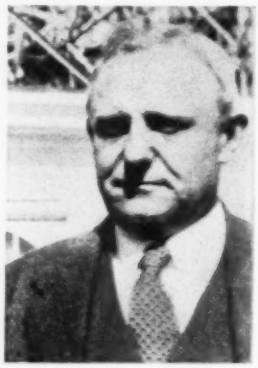
Mr. Simler had been connected with the plumbing and heating industry for many years and had a wide acquaintanceship. Before coming to the Hoffman Heater Co., he was associated with the Ruud Mfg. Co., Pittsburgh, Pa., and prior to that he was with the National Radiator Corp., New York City.

Surviving Mr. Simler are his wife and two sons living in Pittsburgh; a brother, Fred Simler, associated with the Hoffman Heater Co., and several other brothers and sisters. He was a member of the Louisville Gun club and the Benevolent and Protective Order of Elks.

◆

Death of A. A. Gathaman

A. A. Gathaman, for more than ten years New England district manager for A. M. Byers Co., of Pittsburgh, Pa., died recently in Boston, Mass. He was in his 52nd year, and had been in ill health for nearly a year and a half. Mr. Gathaman was an active member of many organizations, including the American Society of Mechanical Engineers, the American Society of Heating and Ventilating Engineers, the National Association of Refrigerating Engineers, the Engineering Society of Boston, the Society of Naval Architects and Marine Engineers. He was also affiliated with the New England Water Works Association and the New England Gas Works Association. He was a member of the Pembroke, Mass., Post of the American Legion. Mr. Gathaman is survived by his widow.



A. A. Gathaman

◆

Death of Jesse B. Garber

Jesse B. Garber, director and general plant manager of The Deming Co., Salem, Ohio, died at the Youngstown City hospital, Youngstown, Ohio, on the afternoon of July 3. He was in his 70th year. Death resulted from injuries received in an automobile accident on March 22, at Wilkinsburg, Pa.

Mr. Garber was born in Canfield, Ohio, and when eighteen years of age he came to Salem and learned the machinist trade. In 1885 he was employed by The Deming Co., with which firm he had been continuously connected. He had been general plant superintendent for approximately 32 years. Mr. Garber is survived by his wife, six brothers and one sister. Funeral services were held in Salem, with interment in Grandview cemetery.

Honorary pallbearers were John Gibbs, W. L. Deming, G. R. Deming, Charles P. Morlan, F. J. Emeny and George Harris. They have been associated with Mr. Garber at the Deming plant for many years, as have the following who served as active pallbearers: William H. O'Neill, W. L. Glass, E. S. Dawson, P. E. McNabb, David Foltz and Roy Porter.

◆

Oil Burner Manufacturers to Hold Trade Conference

A general conference of oil burner manufacturers to discuss the elimination of unethical trade practices which have been confusing to the public and harmful to the industry was held at the Royal York Hotel in Toronto on July 13, as decided upon at a recent meeting of the executive committee of the American Oil Burner Association. The conference was held the day before the directors' meeting of the association, when most of the country's important manufacturers were present.

Walter F. Tant, president of the American Oil Burner Association, in announcing the conference, said particular attention would be paid to unethical and unfair advertising. "The oil burner industry is wasting a good proportion of its sales and advertising effort by selling against competition instead of to the public," Mr. Tant said. "Misleading advertisements are against the public interest and destructive to the industry.

"These and other trade abuses have brought oil burner manufacturers to the realization that we must correct them at once if we are to continue our growth and expansion through this and coming years. Leaders in the industry are approaching this problem in a more constructive manner than ever before and I expect to see the coming conference productive of much good."

The manufacturers also discussed the dealers' problems in recognition of the importance of a live and vigorous dealer organization. In addition, the entire list of vicious and unethical practices arising from intense competition which, Mr. Tant said, "are not productive and lead to business failures," was brought up for discussion.

◆

New Jersey Golfers Play Canoebrook Course

The June meet of the New Jersey Plumbing and Heating Trades Golf Association was held at Canoebrook Country Club, Madison, N. J., June 18, with James Weaver of Central Tube Co. as host. The kicker handicap was played with the following prize winners: 1st prize, Ryan; 2nd prize, Miner; 3rd prize, Officer; 4th prize, Moore.

The afternoon round was played on the north course. Al Fiigon, with a net 74, won the third leg on the Fred Engelberger trophy, and as a consequence it remains in his permanent possession. The prize winners for the afternoon were:

Class A—1st prize, Engelberger; 2nd prize, Baumgartner; 3rd prize, Miner; 4th prize, Weaver; 5th prize, S. Miller; 6th prize, Moore.

Class B—1st prize, Fiigon; 2nd prize, Berla; 3rd prize, Tesch; 4th prize, Ryan; 5th prize, Sel; 6th prize, Burnett.

The guest prizes were taken by the following: 1st prize, Samson; 2nd prize, Ford.

4

Exclusive Features of "Vulcan Superior"

1. "Overhead" adjustment. The handle is on top, where it's easy to operate.
2. Reversible jaws. When the teeth wear, unscrew the bolts and turn the jaws over.
3. Larger capacity. Each vise takes pipe ½ inch larger than others of similar size.
4. Two styles of finish: Chrome plated; Standard with orange panel in jaw.

TWO SIZES

No. 11 for ⅛ to 2½ inches
No. 12 for ¼ to 4½ inches

Efficiency and Speed with the

"VULCAN SUPERIOR" VISE

Here is a vise that is a worthy companion to the old "Vulcan"—the ORIGINAL chain pipe vise. Its design embodies new features that are patented and found only in Williams' "Vulcan Superior." Adjustment is ON TOP, providing fast and convenient operation. Jaws are REVERSIBLE—doubling the useful life of the tool. Made entirely of tough, wrought steel—no castings are tolerated. Genuine "Vulcan" chain. For convenient operation — rapid action — positive grip — long life, order "Vulcan Superior" today.

J. H. WILLIAMS & CO.
"The Drop-Forging People"
75 Spring St. New York

WESTERN WAREHOUSE SALES OFFICE, CHICAGO

WILLIAMS
SUPERIOR DROP-FORGED TOOLS

WORKS BUFFALO, N. Y.

W

VULCAN SUPERIOR CHAIN PIPE VISE

BUY FROM YOUR DISTRIBUTOR

Each Sale
brings you a nice PROFIT

No other water heater on the market offers greater measure of customer satisfaction . . . or greater possibilities of PROFIT for you. Why not investigate this attractive line?

NO FINER WATER HEATER BUILT

Several Attractive Models . . $50 and up

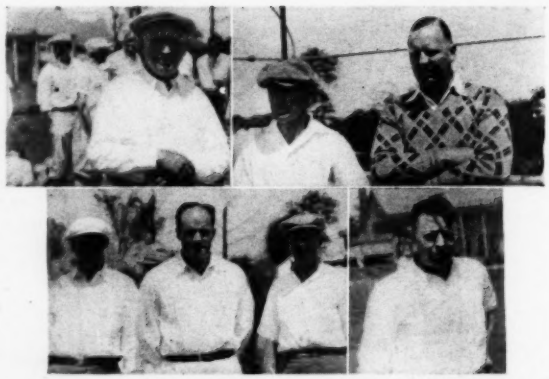
Ample Capacities —15 to 1000 gallons

Safety Pilot Control . . . no extra cost

Write today for full details of our attractive proposition to dealers. We sell through the plumbing trade exclusively.

THE OHIO HEATER CO.
Columbus, Ohio, U. S. A.
Manufacturers of the

OHIO *Automatic* WATER HEATER



Top row, left to right: David Smythe, H. B. McPherson and E. Boschert, all of Pittsburgh. Bottom row: "Dazzy" Vance, K. Brill, James McKissock and L. F. Lawson, all of Pittsburgh. Photos taken at joint meet between Central Trades Golf Association of Pittsburgh and Northern Ohio Trade Golf Association, held recently at Girard, Ohio

Central Trades Golfers Defeat Ohio Group

The June meeting of the Central Trades Golf Association, of Pittsburgh, was held at the Mahoning Valley Country Club, Girard, Ohio. At the same time, the Northern Ohio Trade Golf Association held its first meeting of the year at the same club and a competitive match game was arranged. The Pittsburgh golfers took 39 points and Cleveland 15 points. "Dazzy" Vance, handicapper of the Pittsburgh association, and Joseph Cannon, acting captain of the Cleveland association, arranged the foursomes and took care of the scoring. Point winners of the competition were as follows:

PITTSBURGH		CLEVELAND	
Name	Points	Name	Points
Vance	0	Boll	2
Gauerman	3	Bovland	0
Boschert	0	Kiehler	3
Young	3	Baschin	0
Downe	3	Wieman	0
Blackmore	2	Snyder	0
Rowland	2	Cannon	1
Riesmeyer	2	Medley	0
Schley	3	McAfee	0
McKissock	0	Hertz	3
Berthet	3	Simpson	0
Bryar	3	Enell	0
Kunde	0	Fox	3
Bane	3	Good	0
Kahley	3	Van Hook	0
Smythe	3	Whittaker	0
Lawson	3	Williamson	0
Brill	3	Reilly	0
Edgett	0	Schmidt	3
Canny	0	Deeks	3

The winners of the sweepstakes were as follows:

First Division—Scratch to 12, Inclusive

	G.	H.	N.
L. O. Stearns	79	8	71
E. Boschert	82	7	75
Downe	86	10	76

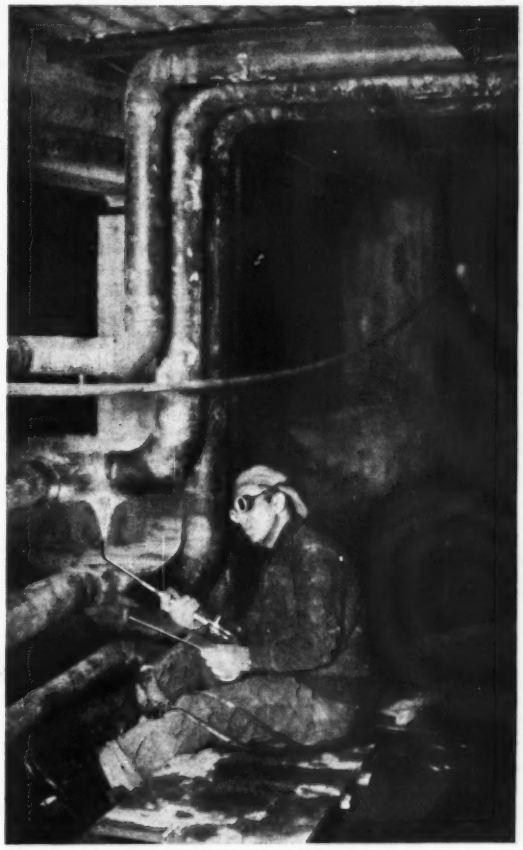
Second Division—13 to 25, Inclusive

	G.	H.	N.
Gauerman	83	20	63
W. B. Simpson	91	21	70
E. E. Berthet	96	25	71
C. C. Chaffin	96	25	71
W. C. Bryar	96	25	71

Third Division—26 to 35, Inclusive

	G.	H.	N.
McPherson	99	35	64
Paul Hertz	96	30	66
E. H. Schmidt	106	35	71
Kahley	101	30	71
H. H. Enell	101	30	71

A Better Pipe Installation Costs Less



Illustrating one corner of the installation of an all welded heating pipe system in a recently built large hospital.

Unusual savings were made possible by coordinated use of Airco Oxygen and Acetylene, Airco-Davis-Bournonville torches and all accessory apparatus and supplies and welders trained with Airco's Educational Course, supplemented with Airco service.

The same combination can effect the same sort of savings for you. Your nearest Airco Office, listed, will be glad to tell you all about it.

AIRCO
DAVIS-BOURNONVILLE

Baltimore
Bettendorf, Ia.
Birmingham
Boston
Buffalo
Charlotte
Chicago
Cincinnati
Cleveland
Dayton
Detroit
Jersey City
Kansas City
Los Angeles
Louisville
Milwaukee
Minneapolis
New Orleans
Oklahoma City
Philadelphia
Pittsburgh
Portland, Ore.
Richmond
San Francisco
Seattle
Shreveport, La.
St. Louis
Wheeling
Wichita, Kan.

Represented in Texas by Magnolia Airco Gas Products Co., Houston, Beaumont, El Paso & San Antonio.

AIR REDUCTION SALES COMPANY

Lincoln Bldg., 60 East 42nd St., New York

Airco Oxygen—Airco Acetylene—Airco-Davis-Bournonville Welding & Cutting Apparatus—Supplies—National Carbide

Connecticut Trade Golfers Play Middletown Course

Sixty members of the Connecticut Plumbing and Heating Trades Golf Association gathered at the Middletown Country Club, Middletown, Conn., on June 17, for the regular monthly tournament of the association. H. E. Brown was host. The following were awarded prizes in the evening, following dinner.

Handicap
1-20

Low gross—H. D. Williams, 93—Flower and fruit bowl.
Low net—Frank E. Doyle, 97-16-81—3 golf balls.
Low net—R. E. Lund, 101-20-81—3 golf balls.
2nd low gross—G. H. Grassie, 94—Cheese and cracker dish.

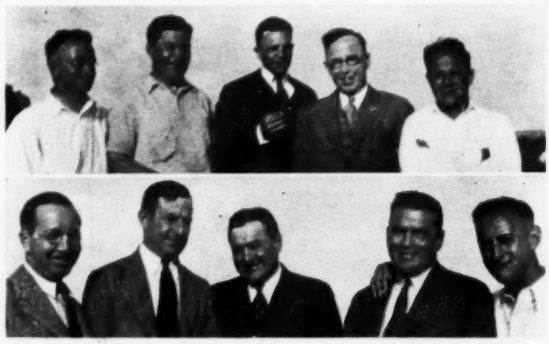
Handicap
21-30

Low gross—F. J. Klett, 99—Silver ice pail.
Low net—T. J. Maloney, 104-30-74—6 golf balls.
2nd low gross—C. J. Leroux, 100—Pewter chop plate.

Handicap
31-40

Low gross—R. E. Douglas, 108—Pewter water pitcher.
Low net—A. E. Russell, 112-40-72—6 golf balls.
2nd low gross—Jos. Lockhart, 109—Pewter bowl.
Consolation Prize—John C. Menzies, 149—Approach putter.

Haynes Trophy—F. J. Klett, 99-28-71— .....
Guest Prize—E. G. D'Vileskis, 94—6 golf balls.



Top row, left to right: J. R. Burns, Hartford; J. H. Allen, of Crane Co., secretary of the Connecticut Plumbing and Heating Trades Golf Association; J. D. Burnham, Bridgeport Brass Co., Bridgeport, Conn.; B. Erk, American Brass Co., Waterbury, Conn.; and J. L. Fierburgh, Hartford. Bottom row: S. P. Graff and H. Strasberger, both of Bridgeport Brass Co.; J. Saley, Stratford, Conn.; W. H. Hoyt, Danbury, Conn.; and A. E. Russell, Bridgeport

Business Personals

E. B. Goodwin has been appointed sales manager of the steam and hot water division of the Motor Wheel Corp., Lansing, Mich. Mr. Goodwin had previously been connected with Standard Sanitary Mfg. Co. as manager of its Cleveland branch, supervisor of the Central division, comprising ten branch houses in Ohio and Western Pennsylvania, and sales manager of the specialties department.

Ellsworth L. Mills, formerly sales manager for The Bastian-Blessing Co., Chicago, has been elected vice president of the company. Mr. Mills continues in charge of sales. He has been an active leader in the welding equipment industry for a number of years. As president of the Gas Products Association, he has done considerable to promote better marketing methods among all competitive companies. Mr. Mills' experience in welding dates back to days, when as a young engineer, graduate of Cooper Union Institute, he foresaw the possibilities in the development of the welding field, and he has devoted himself to this since that time.

Ellsworth L. Mills

J. M. Hipple has been appointed general works manager for the Westinghouse Electric & Mfg. Co. C. H. Champlain, manager of the Westinghouse works at Sharon, Pa., for the last eight years, succeeds Mr. Hipple as works manager at East Pittsburgh. Mr. Hipple has been works manager of the East Pittsburgh works since 1927. After graduating from Ohio State University in 1898 he joined the Westinghouse company. In 1911 he was made manager of the motor engineering department and headed this department until his appointment as works manager. M. L. Fawcett has been made works manager at Sharon. A. B. Reynders, in addition to his present duties as works manager at East Springfield, Mass., will have supervision over the operations of the Mansfield works. J. E. Barkle will have supervision over the Newark works in addition to his duties as works manager at South Philadelphia.

Ben L. Boalt, formerly secretary of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has joined the heat control division of the Penn Electric Switch Co., Des Moines, Iowa, according to a recent announcement by Malcolm Henning, vice president. Mr. Boalt will be the director of sales of this division of the company.

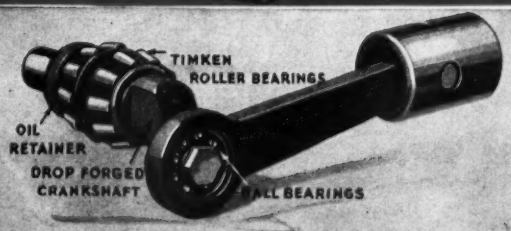
Glenn Eddy, sales promotion and advertising manager of the Ohio Brass Co., Mansfield, Ohio, has been elected president of the Cleveland branch of the National Industrial Advertisers' Association of the Cleveland Advertising Club. He was one of the founders and original officers of the association, which started in 1918 under the name of the Engineering Advertisers' Association.

Herman G. Scheel has joined Pierce, Butler & Pierce Mfg. Corp. as assistant manager of its Chicago branch, and will make his headquarters at the Chicago office of the company, located at 3638 West 38th street. For the past 23 years Mr. Scheel has been associated with the Kellogg-Mackay Co., first in the capacity of salesman from 1908 to 1919 and from 1919 until he joined the Pierce, Butler & Pierce organization as sales manager of the Chicago division.

G. J. Reardon, manufacturers' agent, Los Angeles,

New MARVEL

Shallow Well WATER SYSTEM



1 Timken Roller Bearings or ball bearings on all rotating parts. See detailed illustration above.

2 Stainless steel piston rod.

3 Sectional construction.

4 Drop forged crankshaft.

5 Oil retainer prevents oil from leaking out along the shaft.

6 Splash shield protects oil reservoir from stuffing box water leakage.

7 V-type belt.

8 Automatic lubrication.

9 Automatic air control.

She's "At Home" among her flowers and a DEALER PROFITS

Not only time to "putter" in the garden—but strength to enjoy all the pleasures of life—this is what a Deming Water System helps to provide for the women of today.

Thousands are acquainted with the benefits of a silent, trustworthy Deming Water System. Other thousands are waiting to be told—waiting for someone to tell them of the advantages of running water pumped by a faithful Deming wherever it may be required.

You will find it mighty profitable to join that ever-increasing army of Deming Dealers who are telling the Deming story—and finding ready listeners and buyers. Just send the coupon. We'll tell you all about it.

THE DEMING CO. *Est. 1880* SALEM, OHIO

Deming

WATER SYSTEMS

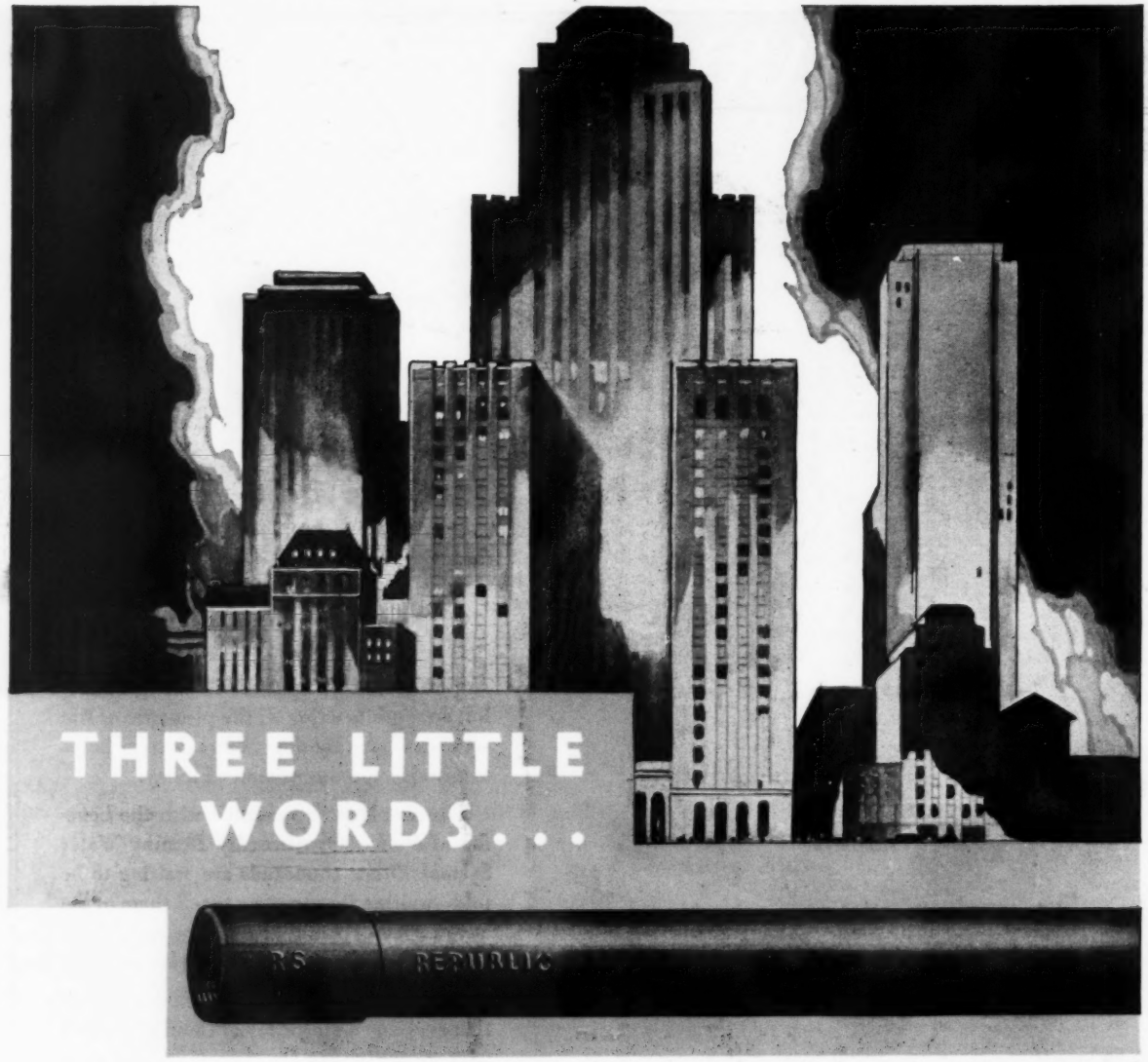
THE DEMING COMPANY, Salem, Ohio
Tell me all about Deming Water Systems and a Deming Dealership. Send your new catalog immediately.

Signed _____

Firm Name _____

Address _____

City _____ State _____



Just three little words—"Republic Steel Pipe" but what a wealth of meaning they convey.

When the general building contractor or building owner sees that you have written Republic Steel Pipe into your bid, he knows that you can be depended upon. He knows that you know good pipe and are not afraid of your convictions. He knows that you feel your responsibility, that you are trying to forestall future trouble for him, and isn't it only natural that he will feel like giving to you just a little more consideration than to the Plumbing or Heating Contractor who leaves the bid wide open.

Write Republic Steel Pipe into your next bid—it is easy to thread—easy to cut—makes tight joints—and as resistant to corrosion as any mild steel pipe made today.

REPUBLIC STEEL PIPE

REPUBLIC STEEL CORPORATION
GENERAL OFFICES: YOUNGSTOWN, OHIO

Calif., has moved his office from 453 South Spring street to the Jennings-Nibley Warehouse building, 440 Seaton street, Los Angeles.

◆

Western New York Trades Golfers Hold Tournament

The second meeting of the Western New York Trades Golf Association was held on June 29 at Niagara Falls Country Club, Lewiston, N. Y. W. E. Voisinet and V. B. Lyman, each with a score of 83, tied for low gross. The duffer's cup was won by Ross Farnham.

Foursome winners were C. T. Hale, Thomas Cruikshank, Fred McLaren, Elmer Carlson, L. C. Hudson, N. L. Danforth, James Hawkins and Daniel McNeil. Low guest prizes went to Barney Short and H. C. Scott.

A business meeting was held when dinner had been finished. President W. E. Voisinet presided.

◆

Chicago Oil Burner Association Holds Annual Golf Meet

The fifth annual golf tournament of the Chicago Oil Burner Association was played recently at Big Oaks Club. The "Risher Cup" was the center of play. This cup must be won three times by an active member for permanent possession. D. S. Whamond, of Williams Oil-O-Matic Heating Corp., with a net score of 72, emerged victor.

The prize winners among the active members were: D. S. Whamond, Williams Oil-O-Matic Heating Corp.; D. M. Durkee, Bell & Gossett Co.; A. W. Steinberg, Williams Oil-O-Matic Heating Corp.; J. A. Adamson, McIlvaine Burner Co.; T. H. Green, Williams Oil-O-Matic Heating Corp.

Other prize winners were: F. A. Hood, Hood Liquid Gauge Co.; L. G. Briggs, Chicago Fuel Saver Co.; H. E. Risher, Risher Fire Brick Co.; H. O. Engstrom, Risher Fire Brick Co.; J. Newton, Crosiar Tank Co.

The tournament was attended by a large part of the membership, and the day was an enjoyable one.

◆

Metropolitan Trade Golf Association Holds June Meet

The June tournament of the Metropolitan Trade Golf Association was held at the Glen Oaks Golf and Country Club, Little Neck, Long Island, N. Y., on June 25. The members were the guests of Jerry Edwards of the Sloan Valve Co., and there was a fine turn-out. Play progressed both in the morning and afternoon, and after an excellent dinner the following were awarded prizes:

	G.	H.	N.
Class A—1st prize—Weaver	88	14	74
Class B—2nd prize—Hale	90	25	65
Class A—3rd prize—F. C. Allen	92	15	77
Class B—4th prize—K. Henzel	107	35	72
Class A—5th prize—Korndoerfer	88	10	78
Class B—6th prize—T. Larkin	98	22	76
Class A—7th prize—D. Johnson	79	..	..
Class B—8th prize—W. T. Gilmour	..	..	..

NYE'S DIE-JEST

Published in the interest of Progressive Plumbers and Steamfitters and incidentally in the interest of the N. T. & M. W.

Vol. 1, No. 3 Nye Tools Save Time Price: One Order

LITTLE SIS PERKINS

Back home where I came from it was a farming country. The little village where I lived was stretched along the two sides of the country road like the flies on either side of a streak of molasses on a grocery store floor. The business of the village depended entirely on the farmers. One summer a terrible drought came. The corn turned yellow in the fields, the springs dried up and the farmers hauled water, and the whole country looked like it had gone to the demnation bowwows. Our people were a deeply religious people and so Parson Heck of the Baptist church set aside a Sunday where we might all gather and pray for rain. The farmers drove in in their buggies and some brought their families seated in chairs set in the bottom of farm wagons.

But nobody but little eleven year old Sis Perkins brought an umbrella.

Sis Perkins made an impression on me that day which has hung to me like a cockleburr to the tail of a fat sheep.

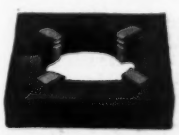
Sis Perkins believed in what she was going to do!

That's me from A to Izzard, from Dan to Bersheeba.

If I didn't believe my product was the very best thing of its kind on earth, I would quit selling and advertising it, and get busy improving it.

If I didn't know that Nye Dies would do the work better than any other die that ever cut its way onto a pipe, I would not be willing to send it on free trial to any dealer in the country.

Harry G. Nye

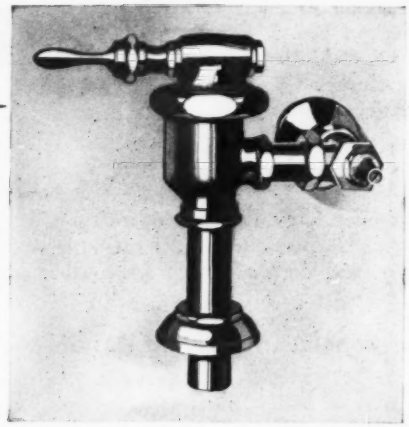


CELEBRATED SKIP TOOTH SOLID DIE (Genuine Nye)

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS - - 4120-30 Fullerton Avenue, Chicago, Ill.

Copyright 1931 by Harry G. Nye All rights reserved.



Crane "Water Controlled" Direct Flushing Valve, C13022-A

A flush valve that makes quick sales *and lasting satisfaction*

Dependable action, health-protecting cleanliness, water economy, sturdiness; each of these important factors demanded of flush valves by homeowners, hotel builders, office building managers, and institutional boards, are present in the Crane Water Controlled Direct Flushing Valve.... Present in the most generous and evenly balanced proportions. Here are the reasons:

1 Cup leather plunger type—the lasting durability and dependability of the cup-leather has been established by its use in pump construction under the most rigorous conditions.

2 Large by-pass protected by nickel silver screen insures against stoppage of by-pass.

3 High lift on plunger provides large waterway through valve and insures satisfactory flush on low pressure.

4 Long refill lip on plunger insures resealing trapway in all bowls.

5 Universal valve—has handle which is adjustable to three positions. Only one stock required for back, top, or side inlet bowls.

6 Operated 300,000 times without failure of any parts.

Each one of these features means longer, more satisfactory, more economical operation. Tell your prospects about them. Show your prospect how this valve actually determines the worth of the closet installation.

Show him how first quality plumbing materials ... valves and fittings, as well as fixtures, protect his whole investment.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICH. AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in Two Hundred Cities

Convention Dates

September 8-11, 1931—A. S. S. E.—The annual convention of the American Society of Sanitary Engineering to be held at Richmond, Va., with headquarters at the Jefferson hotel.

COMING TRADE EVENTS

July 30, 1931—The annual picnic of the Master Plumbers' Association of Lansing, Mich., to be held at Pleasant Lake, near Jackson.

August 5, 1931—The annual outing of the Association of Master Plumbers of Baltimore, Md., to be held at Heintzman's Cottage Grove, Md.

August 5, 1931—The annual outing of the Fairfield County (Conn.) Master Plumbers Association, to be held at Dorlon's Point, South Norwalk, Conn.

August 12, 1931—The annual outing of the Master Plumbers Association of the Bronx (N. Y.) to be held at Karatsonyi's Hotel, Glenwood Landing, Long Island, N. Y.

August 11, 1931—Monthly tournament of the Eastern Trade Golf Association, to be held at Pomonok Country Club, Flushing, N. Y.

August 20, 1931—The monthly tournament of the New England Metal Products Golf Association, to be held at Hoosic-Whisick Country Club.

August 20, 1931—The fourth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Tam O'Shanter Golf Club.

August 24, 1931—The fifth tournament of the Central Trades Golf Association of Pittsburgh, Pa., to be held at the Wildwood Country Club.

August 27, 1931—The annual outing of the Manhattan (N. Y.) Master Plumbers Association, to be held at Karatsonyi's Hotel, Glenwood Landing, Long Island, N. Y.

September 12, 1931—The annual outing of the Master Plumbers Association of Jersey City, N. J., to be held at Blasberg's Farm, Hawthorne, N. J.

September 12, 1931—The annual outing of the Master Plumbers' Association of the Borough of Queens (N. Y.), to be held at Narragansett Inn, Lindenhurst, Long Island.

September 19, 1931—The annual outing of the Master Plumbers' Association of Nassau County (N. Y.), to be held at Narragansett Inn, Lindenhurst, Long Island.

September 19, 1931—The regular meeting of the Federation of Merchant Plumbers of Southern California, to be held at Santa Barbara.

September 21, 1931—The sixth tournament of the Central Trades Golf Association of Pittsburgh, Pa., to be held at the Latrobe Country Club, Latrobe, Pa.

September 23, 1931—The fifth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Oak Hills Golf Club.

September 23, 1931—The fourth tournament of the Plumbing and Heating Golf Association of New York, to be held at the Westchester Country Club, Rye, N. Y.

September 24, 1931—Monthly tournament of the Eastern Trade Golf Association, to be held at Echo Lake Country Club, Westfield, N. J.

October 6, 1931—Monthly tournament of the Eastern Trade Golf Association, to be held at Woodmere Country Club, Woodmere, Long Island, N. Y.

October 20, 1931—The fifth tournament of the Plumbing and Heating Golf Association of New York, to be held at Kings Ridge Club, Portchester, N. Y.

November 16-21, 1931—The Third International Conference on Bituminous Coal, to be held at Carnegie Institute of Technology, Pittsburgh, Pa.

January 25-29, 1932—The Second International Heating and Ventilating Exposition, to be held in Cleveland, Ohio.

◆

Seattle, Wash.—The Westlake Plumbing & Heating Co. has been incorporated with a capital of $50,000 by Simon A. Howe, John G. Barnes and others.

Wilmington, Del.—The Freund Plumbing and Heating Corporation has been organized and incorporated with a capital of $100,000 by A. S. Freund and associates to establish and operate a plumbing and heating business.

THE TRADE NEWS
News of Plumbing and Heating Contractors

N. A. M. P. Establishes New Office in Washington, D. C.

The new offices of the National Association of Master Plumbers will be located at Shoreham Building, 15th and H Sts. N. W., Washington, D. C. This follows the favorable decision at Milwaukee to establish a permanent office rather than have the national office at the home address of each new president. Executive Secretary J. F. Donovan, will be at the Washington headquarters beginning about July 25.

◆

Master Plumbers Visit Kohler Co. Plant on Post-Convention Trip

More than 2,000 members of the National Association of Master Plumbers and its Women's Auxiliary—the largest and one of the most distinguished groups of visitors ever entertained by the Kohler Co.—were guests in Kohler Village on Friday, June 26, following the annual conventions of the two organizations in Milwaukee.

The visit to Kohler Village was in response to an invitation extended by Walter J. Kohler, president of the Kohler Co., in 1930, shortly after Milwaukee had been selected as the 1931 convention city.

Present and past officers of the national organizations and many others prominent in the plumbing and heating industry were among the guests who journeyed to Kohler. P. W. Donoghue, Boston, newly elected N. A. M. P. president, headed a large Massachusetts delegation and other groups represented almost every other state in the union.

Edward B. Kleine, Cincinnati, new N. A. M. P. vice president; Past Presidents George H. Drake, Buffalo, and E. D. Hornbrook, Kansas City; George W. Frank, Buffalo, retiring secretary; Mr. and Mrs. F. C. Kuetemeyer, Milwaukee, 1931 convention chairman, and Mrs. Robert Liss, Chicago, vice president, and Mrs. Rose Friend, Milwaukee, historian of the auxiliary, were others present.

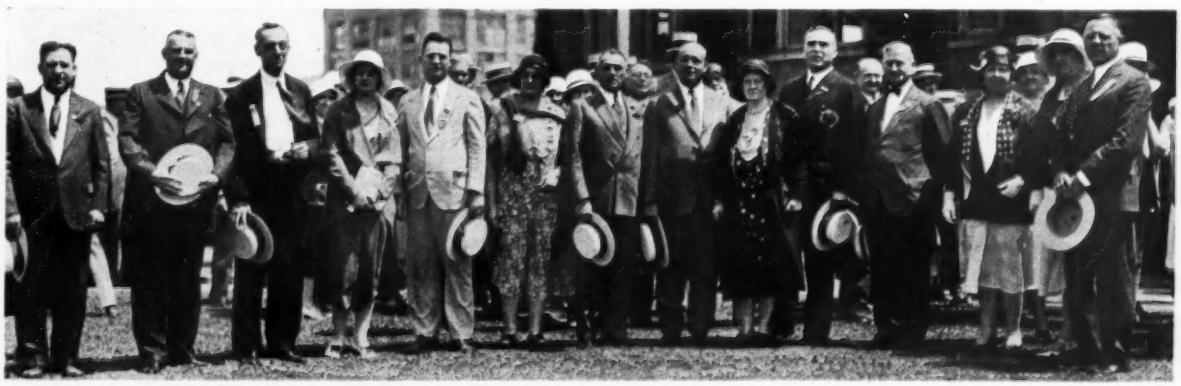
Headed by Walter J. Kohler, president; Herbert V. Kohler, executive vice president, and O. A. Kroos, secretary and treasurer, of the Kohler Co., a large reception committee met the visitors at the trains and escorted them to the general office for an inspection trip through the factories and the showroom.

◆

Secretaries' Association Holds Successful Meeting

The National Association of Plumbing Secretaries held a successful meeting at Milwaukee, Wis., on June 22, it being the thirteenth annual gathering of the organization. Three sessions were held—one in the forenoon, one in the afternoon and one in the evening. In the absence of President Fred Fleishauer, of Buffalo, N. Y., the sessions were presided over by Peter M. Munn, vice president of the association and secretary of the Chicago local. The vice president was assisted by E. F. Bohm of Cleveland, secretary-treasurer.

The affair was well attended and considerable time was devoted to a discussion of current business problems. Robert H. Pflug-Felder, of Philadelphia, read a paper entitled, "Optimism Based Upon Experience." A paper by Mr. Fleishauer entitled, "Duties and Obligations of the Secretary and Executive Manager," was read before the meeting. "A Brief Review of Building Contractors' Associations and Some Conclusions" was



Officers of National Association of Master Plumbers and of Kohler Co.

the title of a paper prepared by Mr. Bohm. Peter King, of Milwaukee, read a paper called, "Activities of Local Trade Association." The association voted John Keane, of Pittsburgh, formerly secretary of the Pittsburgh local and a charter member of the secretaries' organization, the status of honorary member. A number of new members affiliated with the organization at the time of the meeting.

Some Letters on New Gas Company Policy

Our issue of July 11 carried a full outline of the new policy announced by the American Gas Association for the merchandising of gas appliances. The following letters, resulting from the announcement of this change in policy, are from officers of the Master Plumbers association and from a manufacturer of gas equipment.

To the Editor:—

I have notified Executive Secretary Donovan today to release for your use the document headed "Principles Suggested for the Guidance of Member Companies, as a Basis for Promoting Co-operative Trade Relations." If you give this document any publicity, I would appreciate it very much if you would give credit to the chairman of the committee, Mr. Jere L. Murphy, 340 E. 44th St., New York City, and to National Director Maney J. Feeney, 6145 Lansdowne Ave., Philadelphia, Pa., who served on this committee with the writer.

I personally believe that the principles adopted by the gas companies promoting "Co-operative Trade Relations" are a step in the right direction and will unquestionably iron out many of the difficulties now existing between the gas companies and the master plumbers throughout the country. As you probably know, the gas companies have appointed a trade and dealers co-operative committee representing the American Gas Association. The chairman of this committee, Mr. Hugh Cuthrell, 420 Lexington Avenue, New York City, has offered his services and the services of his committee to co-operate with any state or local organization that desires to put these principles into force.

(Signed) P. W. Donoghue, President,
National Association of Master Plumbers,
Boston, Mass.

To the Editor:—

Enclosed please find a copy of the set of principles that the American Gas Association has adopted which speak for themselves. I know that co-operation between the gas company in New York City and the plumbing industry has been beneficial to the plumbing industry. For a number of years they did not co-operate with each other in the selection and installation of gas appliances. For the past six years, however, the master plumbers and the gas companies operating in New York City have co-operated with each other and I know that it has been advantageous to the plumber.

The plumber is in direct touch with the consumer and he is in a position to advise the gas company what is the best type of material to use. By the co-operation between the plumber and the gas company the consumer is assured of the proper equipment and proper installation because the gas company will furnish blue prints to the plumber and the plumber in turn will very often furnish blue prints to the gas company on what the requirements are for certain types of buildings and this eventually works out for the best interests of the plumber, the gas company and the consumer.

From a sales viewpoint, it is beneficial to the gas company for the plumber goes out and creates a market where there is no market, knowing that the gas company will co-operate with him. Before this co-operation existed the plumber was not interested and did not create a market.

The gas company tells us that they are willing to co-operate with all of the plumbers throughout the country but it is up to the plumbers themselves as to whether or not they want to co-operate. From my experience I would say that their best interests would be served by a close co-operation with those who sell gas appliances.

(Signed) J. L. Murphy, Chairman,
Standardization Committee,
National Association of Master Plumbers,
New York, N. Y.

To the Editor:—

I have read with much interest the July 11 issue of DOMESTIC ENGINEERING.

I quite agree with you that the adoption of a definite co-operative merchandising program by the gas industry is most significant news.

The plumbing and heating trade should not, however, anticipate that this trade will flow to them without a lot of effort on their part. Much educational work of a technical and sales nature is necessary for the establishment of outlets that will function on a satisfactory and profitable basis.

We have anticipated the need of work of this nature and have so far prepared four of a series of booklets that contain the accumulation of knowledge of an organization that has been manufacturing and selling gas appliances for many years. Copies of these booklets are enclosed.

The present tremendous expansion of natural gas will compel the gas industry to obtain rapid and extensive sales of gas appliances to compensate for their additional investments and lowered revenue per unit of heat value.

It is, therefore, logical to say that while this new merchandising policy of the gas industry would be of tremendous importance at any time, it has come at a time that combines many extraordinary inducements to bring the sale of gas appliances to a most prominent position in the industry which your trade paper so ably represents.

(Signed) Adams Bros. Mfg. Co., Inc.
Pittsburgh, Pa. E. C. Adams, President

Wisconsin Governor Signs Bill Amending Plumbing Law

The governor of Wisconsin, Philip La Follette, has signed Bill No. 520 A, which embodies a number of amendments to the Wisconsin plumbing law. The new law will become effective sixty days after passage and publication. A few of the objects of the bill are: To clarify the present law; to arrange the law more logically; to define plumbing; to make clear the authority and duties of the state board of health; to prescribe the conditions of serving a plumbing apprenticeship and credits for school attendance, etc.

◆

Michigan Plumbing Law and Code Retained

William A. Johnson, of Kalamazoo, secretary of the Michigan State Association of Plumbing and Heating Dealers, reports that the several bills introduced in the state legislature to repeal the Michigan plumbing law and code were still in committee when the legislature adjourned recently. A determined effort was made by certain organizations to repeal the law, but this was successfully opposed by the state association members and others in the plumbing industry who were interested in the preservation of the law as originally enacted.

◆

Entertain Lackawana Valley Master Plumbers

The Lackawana Valley (Pa.) Master Plumbers' Association held its annual outing, recently, at the summer home of Thomas Williams, located on Lake Champlain. Mr. Williams is a member of the association. A delicious chicken dinner was served. The affair was attended by practically the entire association membership, and, in addition, representatives from many wholesale and manufacturing firms.

◆

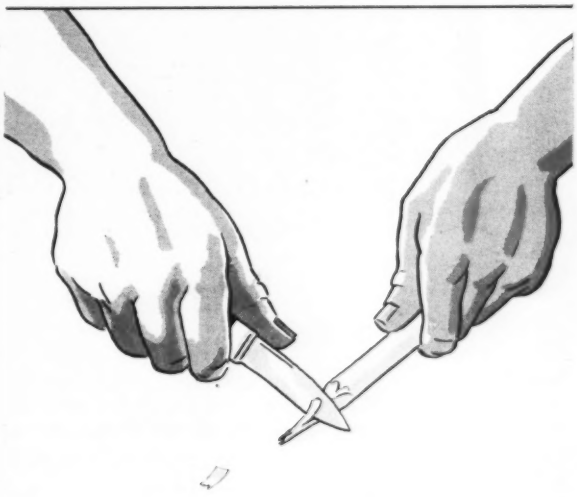
Southern California Federation Holds Successful Meeting

The regular meeting of the Federation of Merchant Plumbers of Southern California was held in Pasadena on June 20 at the Hotel Vista Del Arroyo. The usual golf tournament was held at the Pasadena Country Club, starting at 9 a. m. The grand prize, an electric clock, went to Clyde Hickman of Long Beach. At 3 p. m. the Federation executive board went in to session, and later the official delegates were called together. This meeting was called to order by President Remy of Long Beach and many questions of vital importance to the retail plumbers in general were discussed at some length.

In the evening a splendid dinner was served in the hotel. W. H. Swihart, president of the Pasadena Merchant Plumbers' Association and chairman of the local entertainment committee, officiated as toastmaster. After the dinner Mr. Swihart expressed the pleasure of the Pasadena local and the Ladies' auxiliary in being able to again entertain the Federation. The gavel was then turned over to President Remy, who introduced Mrs. W. H. Swihart, president of the Ladies' auxiliary.

John M. LaDieu, state secretary, gave a short but very interesting and instructive talk explaining the arrangements which had been completed with the University of California at Los Angeles, whereby any master

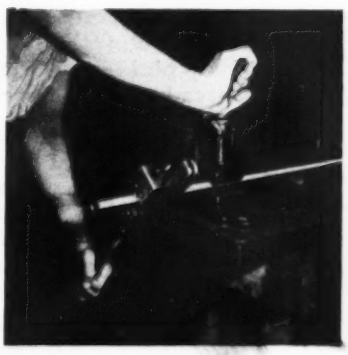
CUTS EASIER . . .



HALF the story of easy cutting is in the material you use.

Chase Alpha Brass Pipe cuts easier than most. Your cutting tool goes through cleanly and with less effort. That's because of the extra lead in Alpha. Your dies cut smoothly and make clean sharp threads.

Order a length of Chase Alpha from your jobber and test it yourself.



CHASE

The mark that identifies good brass and copper products

CHASE *Alpha* BRASS PIPE

CHASE BRASS & COPPER CO.—Incorporated—WATERBURY, CONN.

Group of plumbing and heating contractors of northern Wisconsin on a recent visit to the plant and general office of Kohler Co., at Kohler, Wis.

plumber's son may receive his education in modern sanitation and retail plumbing, and merchandising. He stated that a course similar to that given at the Carnegie Institute of Technology was now available, the first two years of this course being given at the University of California at Los Angeles and the remaining two years at the University of Southern California.

President Remy introduced the speaker of the evening, H. Dean Campbell, certified public accountant of Los Angeles, and a member of the faculty of the University of Southern California, who gave a most interesting talk on business economics.

In a brief talk, President Remy remarked that as long as the master plumbers do not co-operate and put over some constructive program they have no one to blame but themselves for lack of profit in their business.

Dancing until midnight was indulged in and all seemed to enjoy themselves.

Owing to the vacation season, the next Federation meeting will be September 19 in Santa Barbara.

◆

Two Trade Groups Visit Kohler Plant

To learn at first hand how Kohler products are manufactured, a group of plumbing and heating contractors from central and northern Wisconsin and a number of

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

KENNEDY Products help you figure closely, yet safely. They cost no more than ordinary valves and pipe fittings and protect you against expensive trouble jobs. Your fitters and machinists will find that their clean-cut accurately aligned threading speeds up piping jobs and that they are tight at bodies and threads on the first make-up.

Be sure to use Kennedy Valves and Pipe Fittings on your next installation. Your dealer can supply them for you and you will find a suitable size and type for practically every requirement on your plumbing and heating jobs. If you haven't the Kennedy catalogue on hand, write us today for your copy—it will come in handy making a selection for trial.

The Kennedy Valve Mfg. Co.

Elmira, N. Y.
Branches in Principal Cities

journeymen steamfitters of Madison, Wis., visited Kohler village, recently, as guests of the Kohler Co. The groups were conducted through the plant.

A special dinner in honor of the guests was served in the American Club. L. L. Smith of the Kohler Co. spoke, describing the organization and village development.

Arrangements for the visit of the plumbing and heating contractors were made by A. C. Patterson, president, Robert H. Patterson, vice president, and K. R. Radtke, sales manager, of the Wisconsin River Supply Co., Wausau. In this group were master plumbers from Wausau, Marshfield, Merrill, Stevens Point, Wisconsin Rapids, Tomahawk and Hurley, Wis.

◆

Utah County Masters Hold Outing

The Utah County, Utah, Association of Plumbing and Heating Contractors celebrated with an outing at Saratoga, recently.

In conjunction with the outing a meeting of the masters was also held. W. A. Rupea, executive secretary of the Utah State Association of Plumbing and Heating Contractors, discussed the development of the plumbing codes and the methods for increasing the sale of natural gas. Frank Peterson, organizer for the journeyman, with headquarters at Denver, spoke on the value of united effort. Swimming, dancing and a luncheon were also enjoyed.

◆

Death of Thomas A. McKay

Thomas A. McKay, master plumber for many years in Seaside, Ore., and a former president of the Oregon State Master Plumbers' Association, died at his home, recently, after an illness of only five days. Death was due to a complication of pneumonia and influenza.

Mr. McKay had lived in Seaside for 25 years and was a leader closely allied with civic affairs as well as with church and lodge activities. He was a member of the Knights of Pythias, Artisans, Modern Woodmen of the World, was a member of the city council for ten years, president of the local chamber of commerce for two terms, and at the time of his death was vice president of the Clatsop county chamber of commerce.

Mr. McKay was in his 53rd year. He is survived by his widow, two sons and one daughter.

◆

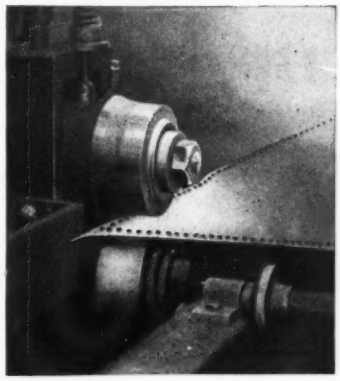
Ogden, Utah, Masters Hold Picnic

The Ogden, Utah, Association of Plumbing and Heating Contractors and the Ladies Auxiliary recently held an outing in Ogden Canyon. Games and refreshments were enjoyed by practically the entire membership.

◆

Wins Craftsmanship Awards

Three employes of J. L. Murphy & Co., plumbing and heating contracting firm of New York City, have been presented with craftsmanship awards for their work on 608 Fifth Avenue, a building on the site of the old Goelet mansion. The journeymen to whom the awards were made are Edward Harrington, plumber, Michael Cronin, steamfitter, and Timothy Cronin, steamfitter's helper. The awards consisted of gold medals and craftsmanship certificates and were presented at a luncheon on June 8 by the New York Building Congress.



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Of Course NOT if they are

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All our Boiler Shell Seams are Crimped along the meeting edges to help prevent the possibility of leaks. Crimping eliminates any undue stress on any part of the seam.

Complete line of ALL WELDED and RIVETED AND WELDED Galvanized Boilers.

JOBBERS: Write for sample of any boiler for 30 day inspection.

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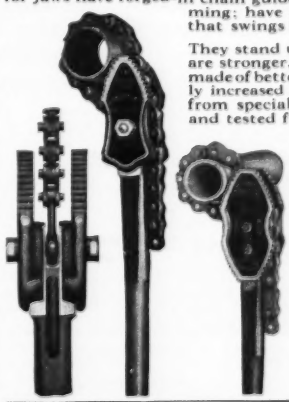
ARMSTRONG BROS.

Quicker in action .. longer in service

ARMSTRONG BROS. Chain Pipe Wrenches are quicker in action, for jaws have forged-in chain guides that keep the chains from jamming; have a drop forged, alloy steel shackle that swings free on a large, hardened steel bolt.



They stand up and give longer service for they are stronger, more accurately machined and made of better stuff. The jaws, which have greatly increased bearing on the bar, are drop forged from special steel, are hardened, heat treated and tested for toughness. Handles are forged from high carbon steel and have both stiffness and "spring." Chains are proof-tested to ⅔ catalog strength—*from 1,200 to 40,000 lb.* Sizes for ½" to 18" pipe. "Standard" or "Reversible Jaw" types.

Write for Catalog P-10.

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Our Readers Tell Us

What the Public Thinks of An Association

To the Editor:—

Last Saturday evening, I entered a local hardware store to purchase a light of glass to replace one which had been broken. While walking out with my purchase, I noticed a display of electrical fittings and accessories on one of the counters which reminded me that I also needed a new socket for the light, in front of the boiler, which just recently had given out. The proper size was not in stock and in order that I might not be inconvenienced or delayed in obtaining the necessary article, I was advised to try to purchase it at the local electric shop, five doors west. I did and although the socket that they had in stock was not exactly the same style as the old one, it was the same size and could be made to serve the purpose. Consequently, I bought it and the dealer took thirty-five cents out of the half dollar which I placed on his counter. This appeared to be an exorbitant price as in the other store they only asked twenty cents for what seemed to me the same article only smaller. It was almost twice the cost.

While he was wrapping it and more to make conversation than anything else, I asked why he should charge so much more than his neighbor in the hardware store. After thinking a moment his undecided reply was, "Well, I don't know but I guess it is because he doesn't belong to the association."

Certainly he did not mean that a state of price fixing existed but that, literally, is what he said. Instead he undoubtedly meant that because he belonged to the association he had adopted the highest standards existent in his industry and that his goods, accordingly, were of the highest quality. Furthermore, he undoubtedly meant that by my going to him I was being assured quality materials and that I must pay accordingly. However, he did not say that and the layman can not be expected to know any more than he is told. The first and natural reaction was, "If I must pay more for the same article because the dealer belongs to an association, then the association is working against my interests and I am going to buy at stores not connected with associations."

We who are well acquainted with associations and their work know that this is a wrong conclusion. But, the man on the street does not. Price is his yardstick unless he is told about assured quality and the protection offered the customer through the association.

This might have taken place in a plumbing or heating contractor association member's shop just as it took place in the electrical contractor association member's shop.

All association members will do well to take little for granted and operate on the principle that the public knows nothing about the inner workings of his industry, leaving much to be done in the way of education.

(Signed) W. W. S.,
LaGrange, Ill.

Don't Guess When You Estimate

To the Editor:—

I read and was very much interested in the article in DOMESTIC ENGINEERING entitled "Guess, and You Lose Money in Estimating." Such service by one who is practical and knows should be appreciated by all thinking men in our industry. The greatest handicap of our industry today has come from the ignorance of those engaged in it and this consequently handicaps our progress.

The article had a splendid heading, "Guess, and You Lose Money in Estimating." It is astonishing the ignorance that is displayed in making up estimates and how few know their real overhead and keep records of the cost of the various installations which they bid upon.

E. D. Hornbrook,
Kansas City, Mo.

Brains Are Best Tools

To the Editor:—

No wonder you are selling more magazines every year. Now your latest addition is "Automatic Heat," something that we all should know about and something that I think we are all a little dull in.

I am just wondering if it pays, for some men in our industry will not know what it is all about if they are in business for 50 years.

The prospects of the business that could be had if we knew how to go after it is shown up by your figures in your June 27 issue.

The reason we as an industry are not getting the business is first the lack of foresight. The best companies in our line will pay large salaries for some of the heads of the company to go out and play golf and get their pictures in the paper; they will pick on some school boys and promise them big commissions and give them a book and have some man that is not practical talk to them for a couple of evenings; then they will send them out in this hard, cruel world to get business, and a number of the questions that these boys are asked in the course of a day could not be answered by their teacher, let alone by these boys that should not be expected to know what it is all about.

I venture to say that if some company could get the vision to send seasoned practical men out to interview prospects and to sell on a real salary, plus expenses, that company in the course of a year would be known from coast to coast, and they would not only get the business but they would get it at a price that would protect the trade, which they should do. They then must go a step farther if they have a product that is worth selling and, that is, follow the installation to completion. If a $2,000 heating system is not installed right, who is going to hear from it first? Why the boiler man of course. If you install a wonderful bath and the ventilating is not right, how long is the owner going to praise

the fixtures and stand for the odor? Not one day after he finds it out.

My whole thought is for the industries (which the writer has spent over 35 years in) to get this business while the radio, auto, electric appliance men are getting theirs. We never heard of an electric man sending the office boy to close some deal where questions of a practical nature would be asked. Then why will we continue to try and sell quality without the tools, and in this case as I see it the tools are seasoned practical brains. What say you?

(Signed) Practical,
New York.

A Wholesaler Who Collects His Bills

To the Editor:—

For our twelve years of operations as jobbers in Los Angeles, we have lost less than $2,000.00 in bad accounts, which also proves that our policies are purely in defiance to the forces of the plumbing trade who do not pay or collect their bills, and who are tearing down rather than building up the plumbing business.

We are enlisting, at this time, the support of the plumber who believes in and practices fair dealing. The economic powers that are at work in all lines of endeavor today are making vast changes and will probably help to see the passing of some things that have tended to ruin our industry.

Our surplus investments are principally made in Southern California real estate, stocks and securities of Los Angeles enterprises, and we have always advocated the sale of home manufactured merchandise and believe that in so doing we will be fostering our own condition.

We are heart and soul with the policy of sale from manufacturer, through wholesalers to licensed master plumbers, which we believe is the most economic principle of sale to benefit the entire industry.

(Signed) John R. Pettis,
Los Angeles, Calif.

A Flat Price for Repair Work Would Cause a Lot of Trouble

To the Editor:—

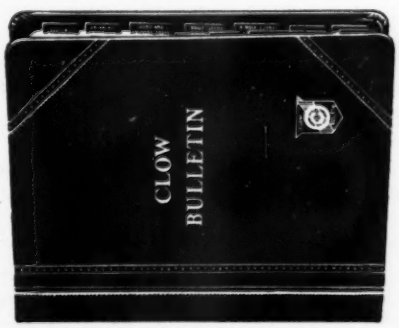
We just run a small shop in a garage, in the rear of a vacant lot. We are in a residential section with a zoning ordinance that keeps us from altering our shop. The reason we state these facts, concerning our shop, is to give you a picture of our set-up. We run three repair trucks the year round. We also specialize on repair work and remodeling work and in fact we have not done a new house in the last five years. We do not get any competitive work, because our price is too high, in fact we figure very little work.

The matter of a "flat price on repair work" has a great many angles. We feel that the repair and remodeling work is about the only profitable work left in our industry. We feel that, if a flat price on repair work were ever started, it would soon get to the same point where new work now is, that is, a bidding proposition, where each man

It would be a bidding proposition, where each man would try to under-bid the other

More than 4000 plumbers hire this "never-wrong"

ESTIMATOR, INVENTORY TAKER, BUYER, INVOICE CHECKER



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Fixtures, pipe, fittings, etc., with their descriptions and prices are on the same page—for fast, sure reference.

Prompt supplementary sheets keep you up to the latest minute. Figure the help this book gives you by eliminating costly mistakes and speeding up Estimating — Inventory — Buying — Invoice Checking. 4000 master plumbers have used it for 15 years. Tear off the coupon right now—as hundreds of other wide-awake plumbers are doing.

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Mail to
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We hereby subscribe for the Clow Bulletin at the rate of 83 cents per month ($10.00 per year). Upon receipt of the Binder and Bulletin pages we agree to pay, at the monthly rate, the proper amount to carry our subscription until September 1st, and we further agree to pay thereafter the subscription price of this Service ($10.00) annually in advance.

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Nothing in this agreement shall obligate James B. Clow & Sons to publish or maintain the Clow Bulletin, the subject of this agreement, except that if the publication of the Clow Bulletin is discontinued after the receipt of our subscription, we shall be repaid the amount of the unearned portion of said subscription.

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BRASS·PRODUCTS

Stock up now with Trenton Brass Boiler Couplings, Tray and Sink Plugs and Flush Valve Assemblies.

It will save you delay when your busy season starts.

Trenton Brass Products should be your standard of quality. They have been giving unsurpassed service to the trade for years.

Order Trenton Brass Products direct from your jobber.

LOOK FOR OUR CATALOG IN PLUMBING & HEATING CATALOG

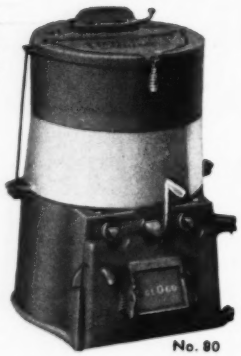
The Trenton Brass & Machine Co.

Trenton - - New Jersey

Represented by
ROLLIN C. WILSON

7 E. 42nd St., New York, N. Y.
261 Franklin St., Boston, Mass.
427 N. Broad St., Elizabeth, N. J.

A TANK HEATER FOR ANY STANDARD SIZE TANK—OR NUMBER OF FAMILIES



No. 80

45 different sizes to pick from

The most thoroughly satisfactory method known of heating hot water at low cost is the coal tank heater. And in all tank heater history there has been nothing to approach, in completeness of line and all-around satisfaction, the GLOCO Red Band Tank Heaters.

Tested to 300 pounds—guaranteed to 125 pounds working pressure.

Ask your Wholesaler

EVINS F. GLORE & SON, Inc.
Grand Central Terminal Bldg. New York City
"LOOK FOR THE RED BAND OF QUALITY"

TRADE MARK
GLOCO
RED BAND TANK HEATERS

would try to under-bid the other. With this in mind, you can see that it would drive down the price on plumbing work and there would be nothing left in it for the shop doing the work.

Another angle on this subject is, when a certain price is set on a certain repair job, the "smart" boys, knowing what the price on this work is, would come in just below the established price and take the work.

We buy the highest price material that we can get, and you can easily see we could not give a price on replacing a range-boiler with an automatic heater when we use a 30 gallon heater that sells for $145.00 when you can get a competitive heater to sell for as low as $50.00.

Making a flat price on repair work and advertising same would cause a lot of trouble with our customers. If you install a set of basin faucets at a certain price and your customer saw a price advertised less than what you charged him, he would feel that he had been over-charged, but he would not have a way of finding out what type of faucets were used in the advertised price, to arrive at the selling price. If there is no advertised price on the repair jobs, he feels satisfied when he pays his bill, as he must trust your firm to give him the best that money can buy and, if you lose that trust that your customer has for you, then you also lose a customer. Repair and remodeling work is quite different from new work. In new work a lot of cheap material is used, because the master plumber in very few instances knows who the consumer is, and when the owner has trouble with this material he generally calls in a plumber whom he knows to correct what is wrong, and this is where the difference comes in. This consumer knows he has some competitive material in his job and is willing to buy a better grade of material, so, therefore, it is up to the master plumber to sell this man the best material possible or have the customer come back to him when the article the jobbing master plumber sells him causes trouble.

Just one more thing that I would like to say.

We had a firm in town here advertising a flat price on replacing an old sink with a 42-in. apron white enameled sink. This price was run in the newspapers for about six months. The shop that ran this ad in the papers and quoted a flat price did not sell one sink on this advertising. The owner, himself, told Mr. Blank so.

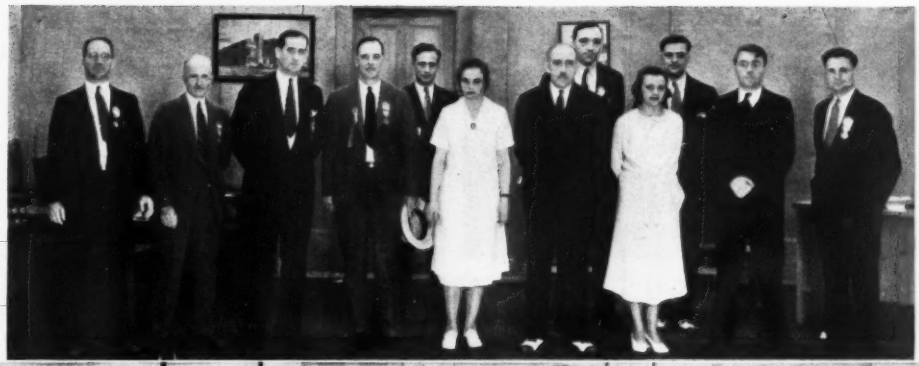
When Mr. Blank asked why he did not sell any, he replied that when a customer decided to install a new sink, he would tell his regular plumber of a sink at such a price and then would ask the plumber if he could put in a sink at the same price. Naturally the answer is generally, "Yes, if they can do it for that price so can I." This kind of advertising was consequently stopped.

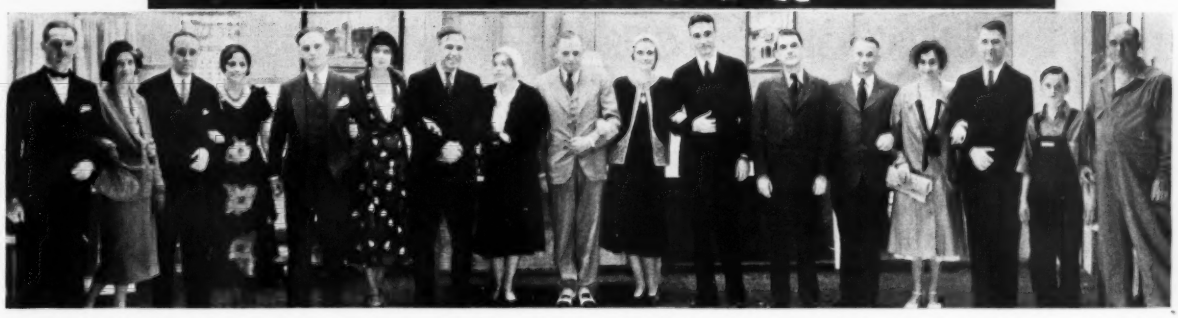
Dayton, Ohio. The Blank Plumbing Co.,
(Signed) Henry S. Blank.

◆

St. Petersburg Association Elects Officers

The Master Plumbers' and Heating Dealers' Association of St. Petersburg, Fla., recently elected Oscar O. Blauvelt to serve as president of the organization for the ensuing year. Other officers elected were Joseph Hersmer, vice president, and Fred M. Quinlan, secretary-treasurer.





In the top picture are the people who presented "First Class," a play written by the Plumbing and Heating Industries Bureau and given at the recent National convention in Milwaukee. In the bottom picture are the members of the cast of "The New Tempo," another play given by the Bureau at the Milwaukee convention

Says Bureau Needs Financial Support

"SMALL, independent manufacturers and almost all wholesalers are riding free as far as financial support to the Plumbing and Heating Industries Bureau is concerned. They are letting the other fellow pay the freight."

This is the way Joseph G. Hildebrand, secretary-manager of the Plumbing and Heating Industries Bureau, summarized the membership situation of the Bureau in an address "Your Bureau—What It Means to You and Our Industry" before the 49th annual convention of the National Association of Master Plumbers.

"We are getting very fine support, as we always have, from the National Association of Master Plumbers. Leading manufacturers are also giving us excellent support, but the small manufacturers and the wholesalers are letting the other fellow pay the freight," he said.

Mr. Hildebrand said that at the present time, when a good many of the manufacturing and wholesaling firms are operating at a loss, it is quite easy to understand the difficulty of getting the executives of these companies to pause long enough from a review of their balance sheets to give consideration to the education of the contractor and the education of the public by means of the Bureau's publicity activities.

"Everyone is human enough to consider their own first and paramount," Mr. Hildebrand said. "Certainly we wouldn't advocate any change from such a procedure, but we do say and believe that doing this entirely and to the exclusion of promoting our industry is shortsighted.

"Support of the Bureau on the part of any company doesn't require an investment that would determine success or failure as far as profits are concerned. The dollars that we ask in subscriptions from wholesalers are really quite little, but the fact remains, and it is a situation that we must face, that, unless we do get this support from these firms who are not helping in this endeavor, we will be faced with the necessity of curtailing our budget, reducing the number of our activities, or of passing out of the picture entirely.

"The functioning of the Bureau for the remainder of the year is assured, but the only hope of continuing all of the services that we are at present attempting to render to the industry will be possibly getting a number of new supporters that we do not now have."

Mr. Hildebrand urged contractors present to get in touch with non-members of the Bureau and urge executives of these companies to support this work.

Speaking directly to the contractors before him Mr. Hildebrand declared: "After you have made a brief summary of the work of the Bureau, and providing that you are in accord with it and believe that it should be continued, then we ask you to accept responsibility for its continuance by personally contacting the executives of the companies who are not supporting us and trying to induce them to loosen up their purse strings. In making this request of you and charging you with this responsibility, I want to assure you personally that there is full honesty and complete frankness in this plea for better Bureau support and it is given with the best intentions towards the advancement of our industry."

BURKS
SUPER-TURBINE
PUMPS

Water Systems
NOT A THROB
in a
MILLION GALLONS

No "push-pull" in a *Burks Super Turbine Pump*. A single impeller performs the pumping function and at no time does it contact with metal. The resulting stream of water is *smooth* and *steady*—always. Literally, there is not a throb in a million gallons.

Powerful suction lift. High pressure delivery. Pumps air alone, or mixed with water, to the full water pressure rating of the pump.

A *profitable* pump to handle.

A wonderful pump to *own*. Now ready.

Water System Bulletin No. 94-C. Condensation Return Bulletin No. 95.

SERIES 7750
HOME WATER
SYSTEM

DECATUR PUMP COMPANY DECATUR, ILLINOIS

JARECKI
for CLEAN-CUT..... UNIFORM FITTINGS

JARECKI
for CORRECTLY DESIGNED PRESSURE-TESTED VALVES

JARECKI
for HIGH SPEED... HEAVY DUTY PIPE THREADERS

JARECKI
for GOVERNORS, UNLOADERS OIL, GAS & WATER-WELL SUPPLIES

JARECKI MANUFACTURING CO., ERIE, PA., U.S.A.

for 79 YEARS A SYMBOL of DEPENDABILITY

Death of Robert W. Pryor

Robert W. Pryor, of the engineering firm of Koithan and Pryor, New York City, died on July 10 at his home in Newark, N. J., after a six months' illness. Upon graduating from Stevens Institute of Technology he joined the Buffalo Forge Co. of Buffalo, N. Y., and after a period of training was assigned to the company's New York City branch. His genial personality, engineering knowledge and natural aptitude to grasp the fundamentals of a highly specialized line of engineering sales work quickly resulted in advancement.

In 1909 he joined in forming the partnership of Koithan and Pryor, as sales engineers and representatives in charge of the New York branch of the Buffalo Forge Co., the Carrier Engineering Co. and the Buffalo Pump Co.

Mr. Pryor was a member of the Essex Fells Country Club, Dotac Athletic Club, Engineers Club, American Society of Mechanical Engineers and the American Society of Heating and Ventilating Engineers. He is survived by his wife, a daughter and two brothers.

◆

Average Home Owner Shovels Half a Million Pounds of Coal

The average home owner with a six-room house shovels during his life-time from one-half to three-quarters of a million pounds of coal into his boiler, and carries out from one to two hundred thousand pounds of ashes. This is one of the "pleasures" of home-ownership frequently overlooked. This interesting figure is arrived at by Howard Dexter, assistant sales manager of the Petroleum Heat and Power Co., by assuming that the average home owner burns eight or more tons of coal a year over a period of thirty years. During the same time he is shoveling the half a million pounds of coal, he will have traveled more than one million feet, up and down stairs and across the celler, in taking care of the furnace.

Where Shall the Relief Vent Be Placed?

(Continued from Page 47)

rather than on the cold water side of the hot water supply tank. They went so far as to state that in all cases they advised clients to make such locations.

Thus it will be seen that in our own personal judgment and in that of most others with whom we have been in contact, preference is strongly for the location of the relief valve on the hot water side. Nevertheless there is much force in what our critic has to say.

The strong point in this criticism is that "when the relief valve is placed on the hot water line excessive corrosion takes place around the seat of the valve, and the proper care and servicing is not given the relief valve at the time the heaters are cleaned out and serviced, and the valve is quite apt to stick. A very slight corrosion around the seat of a relief valve will require an excessive pressure to break the seal."

The matter of corrosion is a very real difficulty. Corrosion is much worse when the relief valve is on the

discharge side of the tank than when located on the cold water supply line, and as far as this point is concerned, it constitutes a strong argument for putting the valve on the supply line.

In the last paragraph of the letter on which our remarks are based, it is urged that even when placed on the cold water supply line, relief valves be taken off and cleaned periodically. If this same thing could be done to relief valves placed on the hot water side of the tank, it would, in our opinion, remove the one big argument against its location there, but we all know that in private installations such a thing as periodical attention to relief valves is a forlorn hope.

Relative to the matter of corrosion, it seems to us that, as pointed out by Professor Holt, the real right place for the relief valve is on the tank itself as in Fig. 3. We believe that a valve so placed will be less subject to the accumulation of corrosion than when placed on the flow pipe from the boiler.

Hot water tanks must be protected against vacuum, excessive pressure and excessive temperature. Protection against excessive temperature is by far the most important, and we believe there is general agreement to this. Generally there would be no rupture of the boiler from regular working pressures for which the boiler is designed and tested, and if there were a rupture or explosion from such cause it would not be disastrous. The destructive explosion results from the sudden flashing of hot water into steam, and to avoid this the temperature relief valve is used, to hold the temperature of the tank below the danger point. If pressure alone entered into the situation, we would say at once that the relief valve would best be located on the supply line.

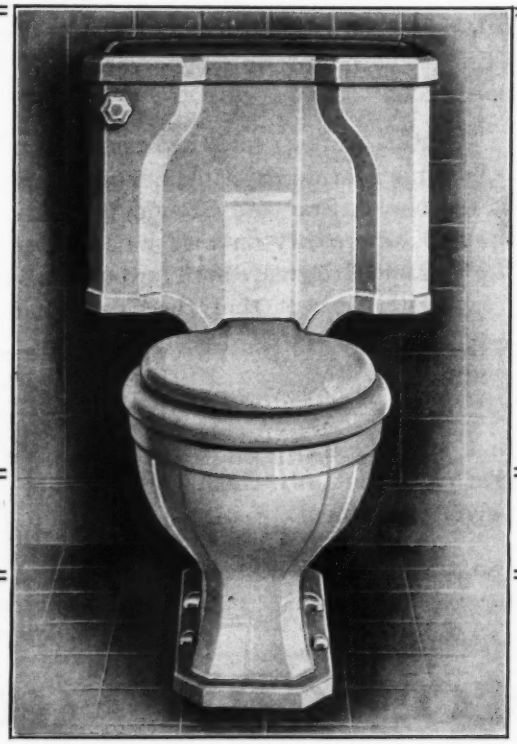
To our way of thinking, the following discussion is perhaps the strongest argument that can be advanced for placing the relief valve where the water is hottest. If the valve is set on the cold water line, every time the valve vents, it discharges cold water, and the water thus discharged is replaced by cold water. However, when the valve is located where the water is hottest, every time it operates it discharges the hottest water there is in the tank, and this is replaced by a like amount of cold water. This operation, then, has a definite cooling effect on the contents of the boiler, an advantage which the other location cannot possibly provide.

Some of these relief valves operate from the melting of a fusible plug. Such a valve of course would be useless on the supply line.

There is a sort of compromise between the two positions concerning relief valve location that has come to mind. This involves the use of the temperature relief valve on the hot water line from the boiler, or on the boiler or tank itself, and the further use of a faucet relief valve. This valve might be used in place of the draw-off or sediment cock, as shown in Fig. 4. As far as we can see, the use of this valve would cover the point that has been raised, would allow the use of the relief valve where we feel it should be used, and would give added protection to the hot water tank.

We offer the arguments that this article contains in the hope that this presentation will lead still further to an exchange of ideas relating to this important point of practice.

BEAUTIFUL « SPACE SAVING « EFFICIENT



EVERYTHING that you and your customers want in a closet combination, you'll find in the Revelation. Beauty, efficiency, economy in cost and space are only a few of Revelation's features.

Tank trimmings of the highest quality insure quiet operation. The Revelation is only 33 ins. high. Seat lid fits into tank depression when lifted, saving space. Extends into room two to four ins. less than ordinary combinations.

Can be placed anywhere in room; back is highly glazed. Integral, tank is bolted directly on bowl (bolts not exposed to water). *All water can be drained from tank by holding tripping device down a moment.*

See the Revelation at leading jobbers or at any of our branches listed below. Write for full information.

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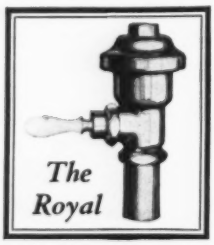
Evansville :: Indiana

Peerless-Alabama Co. Inc., 3000 Avenue E, Birmingham, Ala.
Peerless-Atlantic Company, 470 Stuart St., Boston, Mass.
Peerless-Colorado Company, 785 S. Broadway, Denver, Colorado
Peerless-Missouri Company, 5021 Fyler Avenue, St. Louis, Mo.
Peerless-Northern Company, Charles and Vandalia Sts., St. Paul, Minn.
Peerless-Oklahoma Company, 1-11 W. 8th St., Oklahoma City, Oklahoma
Peerless-Penna. Company. 634 W. Girard Avenue, Philadelphia, Penna.
Peerless-Tulsa Company, 1645 E. 6th St., Tulsa, Oklahoma
Peerless-Utah Company, 150 West 1st South St., Salt Lake City, Utah
Alamo Plumbing Supply Co., 637 E. Crockett St., San Antonio, Tex

"Which Sloan Flush Valve shall I use?"

asked a Master Plumber at the recent Milwaukee Convention . . . . . .

"THERE are really only two types to choose from," we replied, "the ROYAL, with a quarter century of prestige, and the MARINE PRINCIPLE as embodied in the Naval, Star and Crown."



DIAPHRAGM TYPE
For Buildings

"I've used thousands of Royals," said our visitor, "and I guess everyone knows about the old reliable, non-hold-open valve, but what about this Marine Principle in the Naval, Star and Crown?"

"The Marine Principle," we replied, "is the result of our twenty-five years of experience with the exacting requirements of ship service where flush valves must handle the 'bad' water from rivers, harbors and the ocean containing sand, silt, etc.

"The NAVAL is a salt water valve with Marine Principle. It is made from Monel Metal and Salt Water Alloys especially for ships and for installations with corrosive water anywhere.

MARINE PRINCIPLE
For Ships

"The STAR is a fresh water valve with the Marine Principle," we continued. "It is for buildings—especially those supplied with water containing sand or foreign particles.

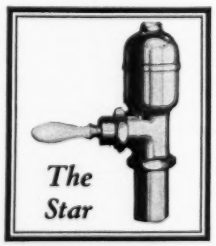
THE
WATER-SAVER

MARINE PRINCIPLE
For Buildings

"The CROWN is also a fresh water valve with the Marine Principle but has the added non-hold-open water-saving feature. It is really the last word in flush valves, as it combines the Marine Principle with uniform flush regardless of how operated."

"In other words," said the Master Plumber, "the same Marine Principle of construction is in the Naval, Star and Crown. The Naval is for ships where they have very bad water and the Star and Crown are both for buildings with fresh water, except that the Crown has the water-saving feature."

"Right," we answered, "and you can readily see that with these two types you can meet any flush valve requirement."



MARINE PRINCIPLE
For Buildings

Maybe you, too, have some question you want answered. Write us at 4300 W. Lake St., Chicago, for catalogues or any flush valve information

SLOAN VALVE CO · CHICAGO

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

WHILE a recent survey by the National Association of Real Estate Boards served to confirm indications evident for some months, that a general adjustment of rents was under way, its findings contradict the belief that there is any considerable surplus of residential accommodations. In fact, the association warns that building operations must soon be resumed if an actual housing shortage is to be averted. Not a single city of over 500,000 population, the report said, reports an over-supply of single family residences, a situation which has not prevailed during the eight years in which these surveys have been made.

Demand from plumbing and heating contractors for material during the past fortnight maintained much the same pace as during the preceding two-week period, with plumbing finishing material moving the most freely. Wholesalers are confining their purchases to actual needs, depending upon the quick shipment service offered by makers. No word of price changes affecting the major commodities has been received from manufacturers.

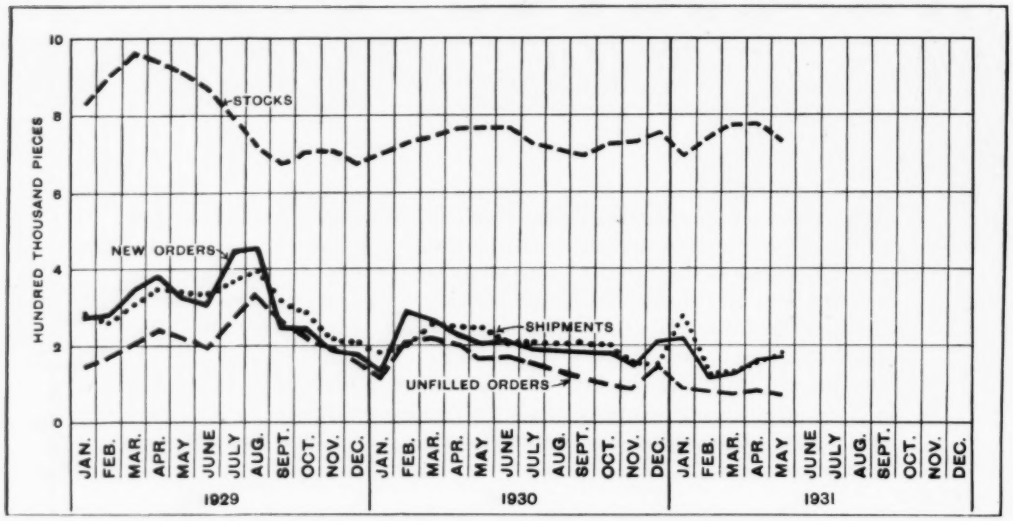
June added $331,879,700 to construction contract awards for the 37 states east of the Rockies, bringing the sum total for the first half of the year up to $1,808,226,800. F. W. Dodge Corp. in announcing figures for June and for the half-year period indicates that residential building fared best among the three major construction classes in both the second quarter and the first half of the current year. For the first half of the year the loss in residential contracts was 15 per cent when contrasted with the corresponding period of 1930.

"Real hope is afforded in the outlook for construction as a whole for the third quarter," the bulletin reads. "In our opinion this period will show the best quarterly comparison to date with the like period of 1930. Though we anticipate a decline, the loss will probably not exceed 20 per cent. This would contrast with realized losses for the first and second quarters of 24 and 37 per cent, respectively."

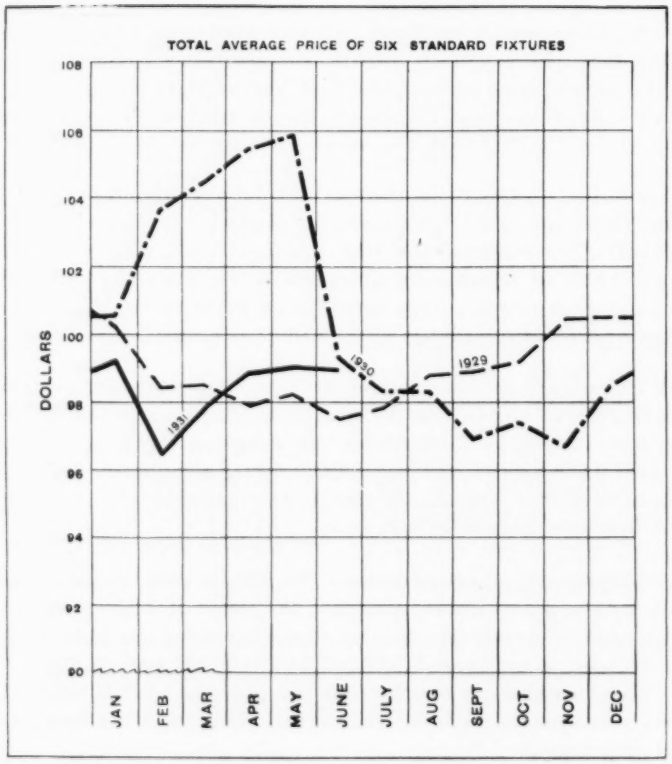
May shipments of solid porcelain plumbing fixtures, as reported to the Bureau of the Census by nine manufacturers, comprising the entire industry, were 7,348 pieces, as compared with 6,960 pieces in April and 8,718 pieces in May, 1930. Total shipments for the first five months of 1931 were 32,461 pieces, as compared with 35,860 pieces for the first five months of last year.

May shipments of range boilers, based on data reported to the Bureau by seventeen manufacturers, the value of whose output constitutes approximately 90 per cent of the total for the industry, were 41,744 boilers, as compared with 47,148 in April and 46,192 in May, 1930. Total shipments for the first five months of 1931 were 244,730 boilers, as compared with 582,162 range boilers for the corresponding period of last year.

May Enameled Ware Shipments Gain



June Wholesale Prices for Six Fixtures Slightly Lower



The Metal Market

	July 20	Avg. May, 1931	Avg. Mar., 1931	Avg. 1929
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.50	$17.50	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.60c	1.65c	1.65c	1.93c
*Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.85c	2.00c	2.05c	2.17c
Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.40c	2.25c	2.35c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.90c	2.80c	2.90c	3.57c
TIN—				
Straits tin (spot) New York	26.50c			
LEAD—				
E. St. Louis	4.22½c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	14 c	Copper, light	5¼c
Block tin pipe	16 c	Heavy copper and wire	5¾c
Brass, light	3¼c	Zinc, old	1½c
Brass, heavy yellow	3¾c	Lead, heavy	3¼c
No. 1 comp. red brass	5½c	Solder joints (close cut)	4½c
Heavy crucible copper	6¼c		

NOTE: Prices are those quoted on Tuesday of this week.
*Comparative prices based on No. 13 sheets.

◆

Oil Heating Business Shows Big Increase

An increase of 102 per cent in the sales of oil burners for domestic and industrial use for the first quarter of 1931 is reported by the Petroleum Heat and Power Co., Stamford, Conn. Increased interest in industrial fields, especially in the East, as evidenced by the doubling of sales during the first quarter, is taken by the company as an indication of returning stability in production. "For many months," said W. C. McTarnahan, president of the Petroleum Heat and Power Company, "industrial plants shut down on any kind of expenditure for new equipment, whether or not the equipment saved the plant money. Boards of directors last year were not interested in fitting their plants for future economical operation by installation of new equipment; they were interested in stopping all expenditures not absolutely necessary."

This change in attitude on the part of industry is regarded by Mr. McTarnahan as a sure indication of returning industrial activity. Business is settling down on an even keel, and with prices lowered in many fields, plans for efficient operation are being put into operation. This year will show, in the opinion of Mr. McTarnahan, an increased demand for all sorts of industrial equipment.

A similar trend of increased business of oil burning equipment is taking place in the domestic field, continues Mr. McTarnahan. Home owners are feeling that the worst of the business depression is over and are loosening up considerably in making improvements to their homes. Salesmen of the Petroleum Heat and Power Company report that in many sections house owners are painting and redecorating to a greater extent than any time in the past five years. Alterations to homes, as porches, bay windows, and the converting of cellars into recreational rooms, are being carried on more extensively.

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TRADE MARK REG US PAT OFF

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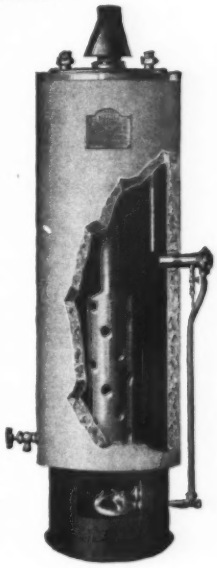

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TORONTO, ONT. . . . . The King Edward
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WINDSOR, ONT. . . . . The Prince Edward
KINGSTON, JAMAICA, B.W.I. . The Constant Spring

UNITED HOTELS

New York Anthracite Club Elects Officers

The Anthracite Club of New York held its annual meeting at the Hotel McAlpin, New York City, on May 27, at which time O. F. Ostbey, of the Domestic Stoker Co., was re-elected president. Theodore Trimmer, of the Trimmer Fuel Co., was elected first vice president. H. T. Richardson, of Richardson & Boynton Co., was elected second vice president. L. M. Burnside, of D. L. & W. Coal Co., was re-elected treasurer, and E. H. Wesnage, of Burns Bros., was elected secretary.

Professor H. G. Turner of the department of geology, Lehigh University, described the efforts of his associates to discover new uses for anthracite coal and its by-products. In the course of his talk it developed that anthracite in the smaller sizes serves ideally for filtration beds in place of sand, and at a cost comparative to that of sand. The efficiency of anthracite is 88 per cent in removing foreign matter and bacteria from drinkable water, he said. Large scale exports are now being conducted in several large cities to further test the research conclusions on filtration beds, he concluded.

Friction in Tees

(Continued from Page 45)

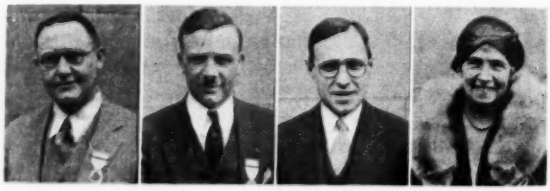
This leaves for the friction in tee *T3* 2.857 minus 2.297, or 0.560 in. The friction in tee *T3* is therefore 1.81 times as large as that in elbow *D*. In this case, 100 per cent of the water is diverted at right angles in the tee so the result checks well with the ratio 1.80 shown in the curve of Fig. 3.

Conclusions

There is a material variation in the friction heads of tees with the percentage of water deflected through the tee, as determined in this investigation and shown by the curves of Figs. 3 and 4. This variation is of importance in the design of piping installations and particularly when applied to hot water heating systems in which slight differences in available heads may produce serious changes in the operation of the heating system.

It is important that additional investigations be conducted to determine the friction heads in tees when the water flows in other directions than those discussed in this paper, to determine how the friction head varies with the absolute velocity through the tee, and to determine the difference between the friction heads in a 1 x 1 x 1-in. tee and those in a 1 x 1 x ¾-in. tee.

Investigations along these lines are now under way and results will be reported as early as practicable.



Left to right: George C. Schwarz, St. Louis, Mo.; W. H. Oleson, secretary, Boston association; A. V. Hutchinson, New York City, secretary, A. S. H. & V. E.; Mrs. Walter Klie, Cleveland, Ohio. Photos taken at the annual convention of the Heating and Piping Contractors National Association, held recently at Louisville

Questions?

ASKED BY READERS AND ANSWERED BY EXPERTS

Why Do These Radiators Leak?

EDITOR, DOMESTIC ENGINEERING: I have encountered a problem in heating a medium-sized house which contains a coal fired heating plant in which there is installed a small coal hot water heater of greater capacity than is necessary to supply hot water alone. This is directly connected to the water supply and from this heater, hot water lines extend to several parts of the house to serve as auxiliary heating units during extremely cold weather and also for heating between seasons—spring and fall—when the main plant is not operating. The system seems to operate satisfactorily excepting that there are leakages from some of the hot water radiators. Can you offer any reasons for these radiators leaking as the radiators in connection with the main heating system are satisfactory? Also, how can the difficulty be corrected?

New York. E. A. M.

Insomuch as the radiators which leak are connected to the water supply system, undoubtedly they are subjected to a pressure of from 60 to 75 lb. per sq. in. This, of course, is far in excess of what exists in the radiators in the main heating system. This pressure should be cut down to a reasonable amount and it may be done by installing a pressure reducing valve. A pressure of from 30 to 35 lb. per sq. in. should be sufficient on the hot water lines. It may be advisable to install a pressure reducing valve on the service pipe so that the pressure on the whole system will be reduced correspondingly.

◆

Soda Fountain Connections

Editor, DOMESTIC ENGINEERING:—The plumbing department of this city has rejected the connections proposed for the soda fountain bar and the refrigerator, as shown in Fig. 1, and has required me to connect up the work according to the layout shown in Fig. 2. Will you kindly comment on the two methods, and let me know which you consider to be preferable.

Connecticut. A. J. C.

In our opinion neither Fig. 1 nor Fig. 2 shows the work installed in a proper manner. Of the two, we would prefer Fig. 2, although that layout seems far from what it ought to be.

If the soda fountain bar alone were to be considered, we would consider the connections in Fig. 1 first class, but the refrigerator is also involved, and the fact that this waste is directly connected to the drainage system is entirely out of character. Under no conditions whatever is it right practice to connect the waste from a refrigerator or from any other receptacle containing food and drink, directly into the drainage system.

The reason for taking a strong stand against direct waste connections for refrigerators is that through

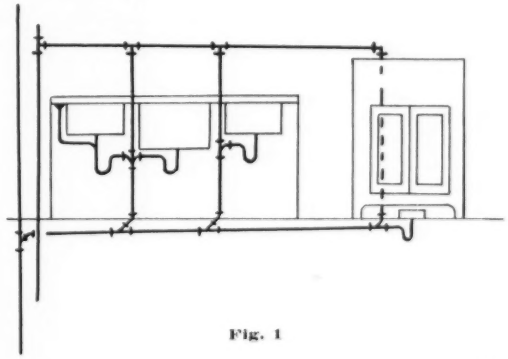


Fig. 1

siphonage or evaporation the refrigerator trap may lose its seal, and then there would be danger of contamination by the entrance of air and gases from the drainage system.

According to our opinion, Fig. 3 or some other similar

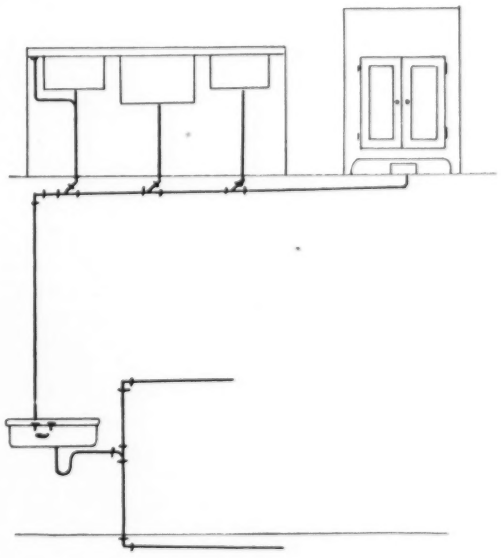


Fig. 2

plan of connections would be much better than either Fig. 1 or Fig. 2.

Fig. 2 shows an unusual layout, from the fact that no traps are used either on the soda fountain bar or

the refrigerator waste, unless, indeed, the return bend on the end of the vertical waste is to be considered a trap. However, we do not take this to be actually a trap, but used rather in the way the brass flap valve is sometimes used on the end of the vertical waste, to prevent passage of cellar air.

If no traps are to be used on this work, we would favor using the return bend, as otherwise cellar air would be able to pass up through the fixture outlets. At best, however, we would look upon this return bend

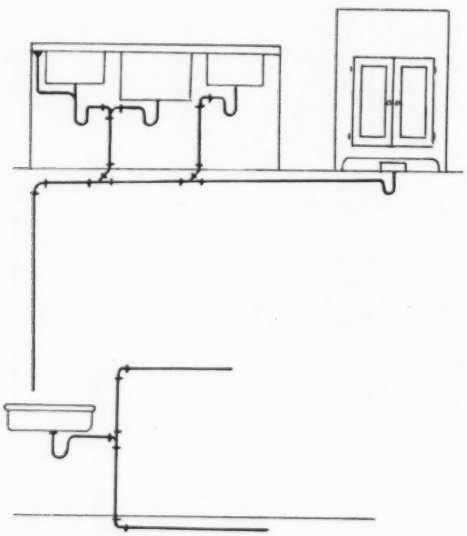


Fig. 3

as an obstruction, capable of producing stoppage, and the waste from these fixtures is abundantly capable of stoppage without any additional help as afforded by using the return bend.

Another result of the lack of traps in Fig. 2 is that a very long length of fouled waste pipe will give off unpleasant odors through the waste outlets. This would be especially undesirable in the case of the refrigerator.

◆

An Air Conditioning Problem

EDITOR, DOMESTIC ENGINEERING: A reply to the following query would be appreciated. Assume a fan in operation delivering 2,228 c.f.m. against ¼-in. static pressure, operated by a 1/3 h.p. motor, air delivered into rooms at 120 deg. Fahr., entering temperature, returning to the fan at 65 deg. Fahr., with 100 per cent recirculation, 27,000 cu. ft. contents.

This fan is connected to an air washer with a capacity of 48 gal. per hour. The building loss in Btu. is 115,000 per hour; how many gallons of water will be evaporated per day when maintaining 45 per cent relative humidity, the air washer being controlled by a humidostat or similar device?

In summer operation in the same structure, assuming entering temperature of city water into washer as at 50 deg. Fahr., what cooling effect would this produce within the building with all the windows and doors shut using 100 per cent recirculation? If only 50 per cent recirculation were used and 50 per cent fresh outside air what effect would this have and would it be best to maintain all inside recirculation assuming a summer temperature of 90 deg. Fahr.?

Wisconsin. H. H.

We believe that our correspondent meant to state that the static pressure for the fan is 1¼ in., instead of ¼ in., because the resistance through an air washer alone is about ¼ in., through the heaters another ¼ in., and in the ducts about ⅜ in. He states that the fan delivers 2,228 c.f.m. which is 133,680 c.f.h. If this air is supplied to the building at 120 deg. Fahr., the amount of heat available for heating will be found to be

$$(133{,}680/55) \times (120° - 65°)$$

or

$$2{,}430 \times 55$$

or

133,680 Btu.

As the heat loss from the building—presumably in zero weather—is 115,000 Btu., it is plain the air is sufficient, not only to heat the building, but also to have a slight excess for contingencies.

The next question is how much water will be evaporated to maintain a relative humidity of 45 per cent in the interior of the building, we suppose, during the heating season. The quantity, of course, will vary with the outside weather conditions since it will consist of the water necessary to bring up the air delivered to the building to a given moisture point so that when cooled down to 65 deg. Fahr. in the building it will have just the desired 45 per cent relative humidity. The reason we say 65 deg. Fahr., interior temperature is because our correspondent advises that the recirculation air coming back to the fan will be at 65 deg. Fahr., so that this must be the room temperature.

As far as recirculating 100 per cent of the air is concerned this has been found to be impossible, or, if not impossible, at least very undesirable. Leakage around the doors, windows, and through the walls all combine to introduce a certain amount of raw air into the room and this air drives out a similar amount of conditioned air so that even if no fresh air was supplied to the fan the return circulation air would not be 100 per cent inside air. If the room were absolutely air tight no one could exist in it for any length of time any more than they could in a tightly corked bottle or a submerged submarine.

With 100 per cent recirculation and an air tight room it would be impossible to maintain 45 per cent relative humidity or a temperature of 65 deg. Fahr. This is for the reason that the air on being rotated through the air washer for any length of time would gradually warm up the wash water until it practically reached a temperature the same as the air and the air would be saturated at this temperature at which time the humidity in the building would have increased to 100 per cent. There also would be a likelihood of the temperature building up also, unless special means were taken to prevent this.

If a constant supply of fresh water should be used for washing under these conditions and if the temperature of this water were around 35 deg. or 36 deg.

Fahr., and if all of this water were allowed to go to waste after being used, then the water in the washer would not warm up but there would be a constant addition of moisture to the air from the occupants of the room amounting to about 1/10 of a pound of water per hour and this would have to be removed by the air washer which then would become a dehumidifier.

Under such conditions there would be no water required for humidifying but there would be water required for dehumidifying amounting to the total quantity used by the washer. Dehumidifiers of small size generally use between 12 and 13 gal. per min., for spray and flooding water, per thousand cubic feet of air handled. This would make the quantity of water required by the washer

$$13 \times 2{,}228/1{,}000$$
or
28.96 g.p.m.

Our correspondent says the air washer requires 48 gals. per hour but probably means 48 gals. per minute which would indicate that the air washer is somewhat oversized; this is no disadvantage except as to the larger quantity of water to be circulated.

If all fresh air is used and no recirculation is employed the number of pounds of raw air to be treated per hour is

$$133{,}680 \times 0.07488 \text{ lb. or } 10{,}009.95 \text{ lb.}$$

Calling this 10,000 lb. of air for the sake of ease in calculating, the amount of water in air at 65 deg. Fahr., and saturated is 0.00099 lb. per lb., and at 45 per cent relative humidity will be

0.0099 lb. $\times$ 45 per cent or 0.00044 lb.

0.00044 lb. $\times$ 10,000 is 4.4 lb. of water required.

With the outside air at zero and about 50 per cent relative humidity, which is the usual approximate outside condition, the moisture in one pound of saturated air is 0.00007 lb., and at 50 per cent relative humidity it will be

$$0.00007 \times 50 \text{ per cent or } 0.000035 \text{ lb.}$$

and 10,000 lb. of air will contain

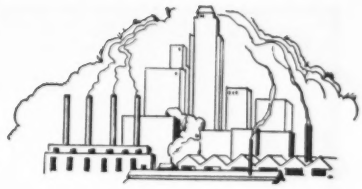
$$0.000035 \times 10{,}000 \text{ or } 0.35 \text{ lb.}$$

It now is plain to see that the amount of water to be added to the air with the entire quantity taken from the outside is

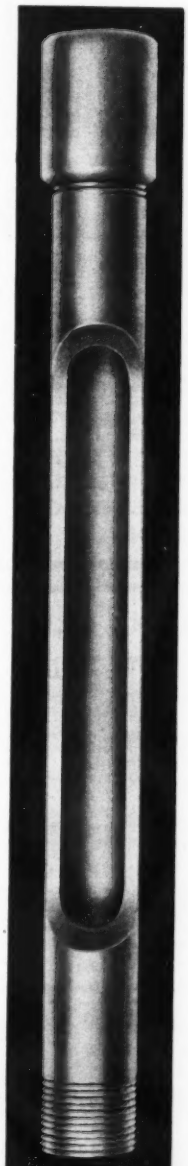
Quantity of water required	4.4 lb.
Quantity of water in air	0.35 lb.
Quantity of water to be added	4.05 lb.

If only 50 per cent outside air were used the quantity of water to be added would be only 50 per cent of the above amount and if only 25 per cent fresh air were used the quantity of water would be only 25 per cent of that shown above, and so on. In fact as soon as recirculation begins there is a deduction to be made in the water to be added, this deduction amounting to about 1/10 lb. per hour per occupant. This is the approximate amount of moisture given off by human beings and should be credited according to the percentage of recirculation being used. Thus, with 75 per cent recirculation the credit for moisture added by the occupants would be

No. of occupants $\times$ 1/10 lb. $\times$ 75 per cent.



JUST AS CLEAN INSIDE AS OUTSIDE » »



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The leading Wholesalers recommend and carry Expan-Hub because it is preferred by most contractors, architects and owners. If you haven't used it you've missed something. *Your Wholesaler can supply you.*

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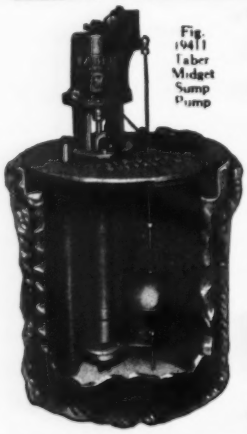

Fig. 1941 Taber Midget Sump Pump

AUTOMATIC . . . *without servicing!*

Automatic is one thing . . . and automatic *without servicing* is another.

The positive automatic operation of Taber Sump Pumps is unattended by periodic servicing. Install it . . . then forget about it. You have provided Dry Cellar Insurance.

Low prices on Taber Sump Pumps make them still more desirable. Write for descriptive literature and prices. See Page 923 Domestic Engineering Plumbing and Heating Catalog.

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TABER PUMP CO. *Est. 1859*
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E-Z RADIATOR HANGERS

Three styles E-Z RADIATOR HANGERS meet any and all conditions. Fully adjustable both horizontally and vertically. Easily installed at minimum cost. Recommended by leading architects and contractors. Write for complete information.

Style "H"

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Also Manufacturers of
E-Z INSERTS and E-Z LAVATORY HANGERS

It might be remarked at this point that the customary inside conditions for winter weather are 70 deg. Fahr., and 50 per cent to 60 per cent relative humidity which permits a temperature of air leaving the air washer of between 50 deg. Fahr., and 55 deg. Fahr. This would make it possible to operate the air washer at a somewhat higher temperature.

As the temperature outside rises the quantity of moisture in the outside air increases (usually being between 40 per cent and 70 per cent relative humidity) until the outside air reaches about 60 deg. Fahr., when the use of the air washer can be discontinued as far as humidifying is concerned.

Increasing outside temperatures will soon result in introducing outside air with too high a moisture content and then the air washer must be operated as a dehumidifier instead of a humidifier. With 50 deg. Fahr., wash water and no water reused it would be possible to cool the air passing through the washer to about 55 deg. Fahr., and the air would be saturated at this temperature; if the room is held about 15 deg. Fahr. below the outside temperature the room temperature with 90 deg. Fahr. outside would be

$$90° - 15° \text{ or } 75 \text{ deg. Fahr.}$$

The next thing to find is how much below this temperature the incoming air must be in order to keep the room 15 degrees cooler than the outside. If the Btu. loss for the building in zero weather is 115,000 Btu. then the loss for each degree of difference is

$$115{,}000 \text{ Btu.}/70 \text{ or } 1{,}643 \text{ Btu.}$$

and for 15 deg. Fahr. temperature difference the Btu. delivered into the room would be

$$1{,}643 \text{ Btu.} \times 15 \text{ or } 24{,}645 \text{ Btu.}$$

and the number of degrees below the room temperature for 133,680 c.f.h. would be

$$24{,}645 \times 55/133{,}680 \text{ or } 10.1 \text{ deg. Fahr.}$$

which makes the temperature of the entering air

$$75° - 10° = 65 \text{ deg. Fahr.}$$

The 24,645 Btu. however should be increased for occupants, lights, and any other sources of heat production in the building but as we have no information in regard to these items they will be neglected.

The water used in the air washer would be the same in any case no matter what the amount of recirculation employed unless some special thermostatic arrangement could be devised so as to let the water in the air washer pan begin to waste as soon as the temperature went above a certain degree in which case some economy in water use would be possible.

◆

How Many Plumbers' Sons Enter the Plumbing Trade?

Editor, DOMESTIC ENGINEERING:—Can you give us any statistics relative to the number of plumbers' sons who are entering the plumbing trade "in their father's footsteps"?

Erie, Pa. Signed: W. L. B.

We question whether any exact statistics can be secured on the number of master plumbers' sons who enter the plumbing business. However, you are safe in

saying that the number is steadily increasing. Led by Carnegie Institute of Technology, colleges have begun to establish courses in sanitary engineering; scholarships are now open to master plumbers' sons; in addition, many contractors have financed a college education for their sons along lines which will equip them for the plumbing and heating business.

The advantages offered by the plumbing and heating business are steadily attracting more of the younger generation to follow their fathers.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of June 13, and the accompanying answer is by a reader:

In the May 16 issue a question was asked and answered regarding a sewer entering the basement 3 ft. above the basement floor. Here is a similar problem with different conditions. Suppose you are installing a job of plumbing in a residence where the sewer is of sufficient depth to give good drainage but in flood time the water may back up to a depth of three or four feet. You have a toilet, shower, laundry tray and three floor drains in the basement. Also, there is a system of open field tile around the foundation wall. How would you do the job to guarantee the owner against flooding his basement?

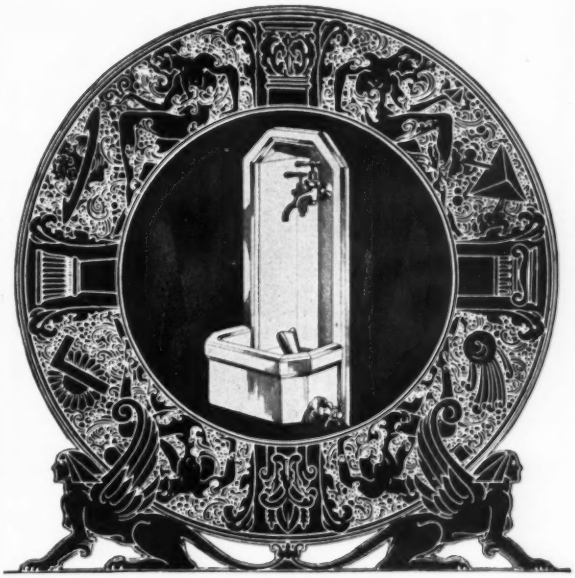
How Would You Answer This Question?

What relation have the pipe sizes to the time required to heat water in a hot water supply boiler, referring only to piping between storage tank and heater. What sizes are ideal for 20, 30, 40, 50, 60 and 70 family apartment buildings. Assume that the heater and the tank is ample and that the water demands of the families are normal.

Answers based upon your experience, and suitable, will be paid for and published in the August 22 issue.

1

THE only difference between this problem and the problem which appeared in the May 16 issue on page 135 lies in the depth of the house sewer. In the first question, the sewer was assumed to be 3 ft. above the basement floor. In this case, the sewer is at a proper depth below the basement floor but in flood time, the water in the sewer rises in the basement to a height of 3 or 4 feet. As a result, the solution is the same when pumping equipment is used and the drawing, which was published with the May 16 answer, applies in this case. The idea, of course, is to raise the house end of the sewer high enough to prevent any back-flow of storm water into the basement. Since the water will rise in the line to a height of about 4 ft. above the basement floor, and since there are fixtures and floor drains in the basement below this level, the line from



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Equipped with the famous Century Automatic Bubbler Head, it is undoubtedly the most efficient in all America. Invented nearly three years ago, this Automatic Bubbler Head has created a new standard of sanitation. Connected direct to line pressure, it automatically maintains a normal, wholesome drinking stream. Volume controls and other hand operated devices are unnecessary. It is truly Automatic! Each turn of the handle produces an amazingly smooth, convenient drinking stream.

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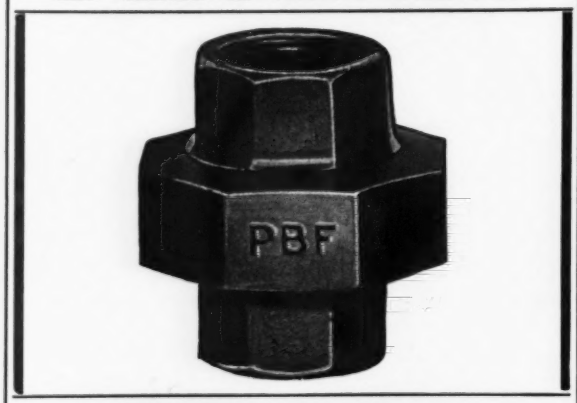

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the street sewer should rise to a height of about 4 ft., 6 in. or 5 ft. before it drops into the basement to pick up the basement fixture wastes. Naturally, it would be necessary to install some type of pumping equipment to raise the basement waste up to the highest point.

This is a problem and solution which may be applied to many plumbing systems throughout the country. The problem outlined in the May 16 issue where the sewer is higher than the basement floor is not common. However, the problem of storm and sewage water backing up into the basement is a very common one.

Top row, left to right: J. E. Dodd, G. W. Schulze, Erling Rohde, Edw. Rohde, Gus. Matchinske, A. C. Goeddel, secretary, and T. J. Mackenzie, all of San Diego association. Bottom row: Part of the Pasadena delegation—W. H. Swihart, president; Mrs. Swihart, auxiliary president; Mrs. A. R. Benedict, J. J. Meskell and Mrs. Meskell, and A. R. Benedict, past local president. Photos taken at the annual convention of the California State Association of Merchant Plumbers, held recently at San Diego

Correct and Incorrect Bathroom Connections

(Continued from Page 42)

is not at all in accord with the best modern thought concerning this subject.

Right in line with this position is the layout shown in Fig. 8. There is no more reason for back-venting the bathtub than for back-venting the water closet, and the same statement goes for the lavatory. Both fixtures are close enough to the stack to be stack-vented, thus saving the expense of separate vents. And yet not a few cities will require these two fixtures to be vented when located on a top floor or when they are on some lower floor with no fixtures entering the stack above them.

It may be pointed out that the venting of the bathtub is not of the best type, and that it is wrong to connect the lavatory waste into the heel of the lead bend.

Figs. 9 and 10, taken from pilot drawings of important cities, show this same feature. In Fig. 9 the lavatories should be stack-vented, and in Fig. 10 it is an absolute waste of good money to vent the two water closets.

When the venting of top floor fixtures close to their stacks is called for by a plumbing code or a pilot draw-

ing, it has always seemed to us that it was due to one of two causes—either ignorance or the wrong desire to build up the cost of the plumbing installation.

Our final illustration is Fig. 11. This shows the typical method of installing a bathroom in which fixtures are served by unvented non-siphon traps. A study of plumbing codes shows that there is, here and there, a city in which this practice still persists. The practice is gradually dropping off in favor of the vented plumbing system.

Personalized Collection Methods

(Continued from Page 93)

as is possible to get. Anyone who will not give references as to their honesty I beware of. We then get reports from the credit associations and feel pretty safe with collections if the job is well sold, and well investigated.

When people are in need of heating work, as time means much to us in emergency heating contracting, we get all reports as quickly as possible so that we may give our decision without delay, whether we take the job or not.

After we complete a job we immediately send a statement so that if there is any complaint we want to know it. Then, the first of the month we send another statement. There is no "hokus-pokus" about collecting accounts.

It is just plain common sense and plenty of determination to insist on the payment of honest debts.

"Modern credit associations are surely a blessing to heating contractors, as the cost of membership is insignificant when we realize what money and time can be saved."

The heating firm should investigate thoroughly and satisfactorily as to the paying habits of prospects and make an iron-clad contract, stating exactly what work is to be done, fully specify material to be used, and nothing else to be done that is not stated in the contract; also state exactly how payments are to be made and when. The contractor should see that this contract is properly signed by man and wife, or all who are owners of the property, who are having the work done. If the job is well sold it will stay sold, and the account will not be so hard to collect. I feel that the heating contractor, who paves the way to well selected customers, will have fairly good picking, profitable, and a contented heating contracting organization; and collections will not be painful things.

I feel that if other heating contracting firms will have a fighting courage and determination with a clear vision to go after good clean business, recommend only high grade merchandise, backed by conscientious, capable workmanship, credit thoroughly investigated and with their minds and hands on the steering wheel of collections, and alert enough not to get hit or to hit. Those that partake of this activity and try to do the job in the right way will have a successful, prosperous business.

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And a part of any modern heating job is complete Moore Radiator Hanging equipment. Install them for the cleanliness they make possible for your customers and the profit they make possible for you.

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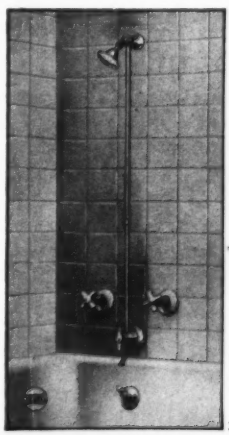

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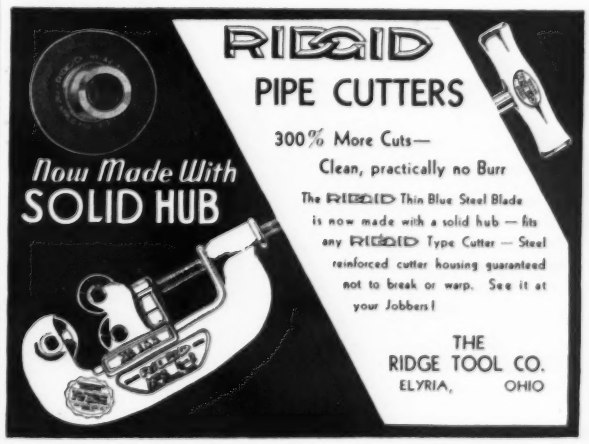
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N.A.M.P. Standing Committes Report on Year's Work

Reports submitted by the standing committees of the National Association of Master Plumbers at the recent Milwaukee convention reflect the work done by these committees during the past year. The following are abstracts of the reports of these committees:

Standardization Committee Report

Jere L. Murphy of New York, chairman of the standardization committee, read the various resolutions, presented at the last national convention, which had been referred to his committee. With reference to Resolution No. 7, which asked that the patterns of built-in tubs be altered so they would have a sharper pitch, Mr. Murphy reports that the present pitch is one-quarter inch to the foot and the manufacturers feel that if there was a greater pitch it would cause an increase in accidents in the bathtub.

Resolution No. 8 directed that the committee work with manufacturers and wholesalers to eliminate the use of china as handles. This was taken up with manufacturers, who stated that there was a demand for porcelain, china and glass handles and that it would not be an easy matter to drop them quickly, but that they would look into the matter and take it up further with the committee.

Resolution No. 12, presented by Tennessee, urged manufacturers of plumbing fixtures to mark each fixture with a serial number or permanent mark of identification. It was taken up with manufacturers, who claim that this practice would entail considerable expense and that at this time it would not be possible to do this.

The resolution numbered 27 at Boston asked that a committee be appointed to confer with manufacturers of plumbing and heating material with a view to establishing a testing laboratory so that all goods might be tested and stamped with its approval in order that the plumbing and heating contractor would be guaranteed that materials so stamped would meet with any requirements. The question was gone into at considerable length and was taken up with the Pittsburgh Testing Laboratories. B. H. Witherspoon, who represents the laboratory, had several conferences with the chairman of the conference committee. Mr. Murphy reported that a willingness was shown to go into the question. "It is my opinion," he said, "that this is a very important question for the manufacturers. However, in corre-

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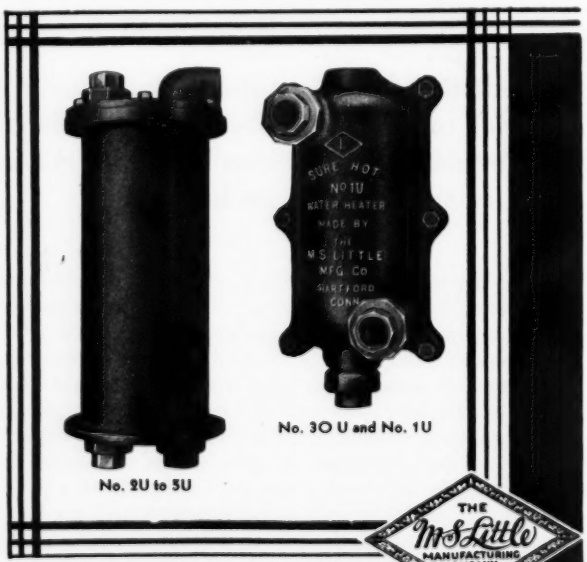

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NEW LINE OF SURE-HOT HEATERS

30 gal. - 144 gals. furnished with three unions. Send for folder 56-1.

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spondence that I had with them, they claim that they have their own testing laboratories and that this is sufficient. Mr. Witherspoon came before the board of directors and they listened to him very carefully, and decided that they were in favor of this resolution and would give instructions to the incoming board and the president to take it up further."

Mr. Murphy indicated that, as chairman of the committee, he approved the existing standards for standard weight malleable iron fittings, etc., for another year; of existing standards for pipe nipples, and the commercial standards of fittings for closet seats—bolts, etc. Also approved steel pipe nipple standards.

Hoover Code Work

On the matter of the Hoover code, Mr. Murphy, as a representative of the plumbers on the committee for that code, attended three meetings. "This committee," he reported, "took up the question of pipe sizes. Dr. Hunter did the testing and made several visits to New York City, due to the fact that I contended that some of the things they were doing they had not much knowledge of, and that inasmuch as we were making those tests we might as well go into it as far as possible. I invited Dr. Hunter to New York City to make tests in actual buildings. He made a series of tests under varying conditions in large and small buildings. He admitted that he had picked up some very valuable information. I delegated a man in my employ, who I believe understands the subject of plumbing, to go around with Dr. Hunter and make that series of tests. The result was that Dr. Hunter made a report that the plumbing industry was very helpful and that he had discovered some things from a practical viewpoint that he knew theoretically.

Martin W. Utz, chairman, conference committee

"We contended that they should have a knowledge of types of buildings before writing a proper plumbing code. Our industry is changing and changing rapidly. You men who are in the industry applying all of your time to it have a hard time to keep up with the changes and we so explained it to the Hoover committee. We objected to some of the things they were doing, with the result that at the present time they are erecting a tower in Washington. It will be one hundred feet high, and they are going into a series of tests after they have the tower completed and piped, and they will probably find that there will be some further revisions of the code after those tests are completed."

Joseph G. Hayes of Indianapolis, a member of the standardization committee, asked why, as a member, he had not been called upon to attend any meetings, a fact to which he objected, as he felt that the chairman of the committee was acting rather than the committee as a whole. Mr. Murphy explained that it was true that he had alone carried the work of the committee during the year, but explained that he had been informed by the president that there was not sufficient funds to hold

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By this we mean that you can frequently secure the privilege of figuring Sanymetal Steel Shower and Toilet Partitions in your plumbing estimates. You will thus tap a decidedly worth while source of additional profit without adding a penny to your operating expense.

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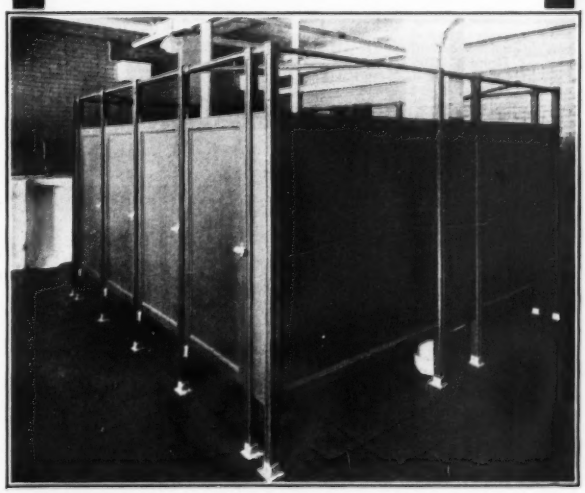

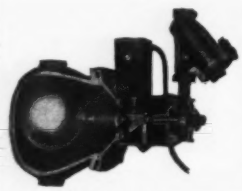

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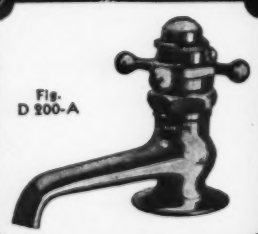

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general meetings of the committee. Mr. Drake endorsed Mr. Murphy's explanation, saying that much of the business of the association has been conducted by mail.

Conference Committee Report

The report of the conference committee, headed by Martin W. Utz of Rochester, N. Y., advanced a new thought in connection with the separation of mechanical equipment in government work. It was impossible to introduce a bill at the last Congress, but three interested groups are working on it. The chairman called a meeting in New York City of the Electrical Guild and the Heating and Piping Contractors' National Association. After general discussion it was decided that it was the best plan to have the government pre-qualify bidders and then take separate bids, these things to be discussed at the three national conventions and resolutions adopted that each association appoint a committee with power to act. The electrical men and the heating contractors passed such a resolution at their national meetings.

The committee then recommended a resolution to the effect that specifications sent out by the federal government contain a pre-qualification clause based upon financial standing and experience that are a guarantee of satisfactory performance.

The committee reported also that a bill had been passed in the House of Representatives and signed by the President, relating to the rate of wage to workers on government buildings. Every contract in excess of five thousand dollars to which the government is a party is to provide that the wage for laborers or mechanics who work on such a building is not to be less than the prevailing rate of wages for work of a similar nature in the city or town where the public building is located.

Scholarship Committee Report

John J. Vogelpohl, of Cincinnati, reporting as chairman of the scholarship committee, said: "Last year at Boston you adopted a resolution authorizing your president and the chairman of the scholarship committee to execute an indenture of trust. This has been done. At the present time we have five young men at Carnegie and a little later at this convention your committee will submit the names of two young men who have complied with the requirements. The Women's Auxiliary, which has been so helpful in building up the fund, have made it possible for another young man to enter Carnegie, by a splendid contribution of $2,000.

John J. Vogelpohl, chairman, scholarship committee

"We were very fortunate in having a large number of young men take part in the competition for scholarships this year. Your committee, through the national office, secured special financial reports regarding the ability of the fathers of the applicants to take care of the expense involved. First, we made sure that they were established and identified with the national association. We then

asked the national to get a special report of the father's ability to pay. We knew no better way of getting this information than through those who have a set-up for the purpose. You might be surprised to know that the information which we were able to get in some instances was rather interesting to the committee, because a number of these men were blessed with this world's goods to such an extent that it was no hardship for them to send their boys and pay for the tuition."

Mr. Vogelpohl indicated that the scholarship fund now has invested in guaranteed securities $135,700, to which will be added the $2,000 from the Women's Auxiliary.

Following this report, there were some questions asked from the floor and it was evident that there was some misunderstanding as to the degrees received by the students and the process involved. As explained by Dean Connelly, of Carnegie, the boys receive the Bachelor of Science degree upon the completion of their four years' work. They are then expected to work at their profession until they have acquired an experience which will enable them to turn in a thesis, upon which their professional degrees will be granted.

The names presented by Mr. Vogelpohl were: John Richmond, of Cleveland Heights, Ohio, and John A. Burns, of Wallingford, Conn. The successful applicant for the Women's Auxiliary scholarship, which is to be known as the Past Presidents' scholarship, is Owen A. Kennedy, of Fort Mitchell, Ky.

Following this discussion concerning degrees, the suggestion was made from the floor that, inasmuch as the scholarship committee had indicated that the income from the investments is now sufficient to defray some of the committee's expenses, an increase should be made in the $600 granted each student. This would involve the continuance on the part of the national association of the practice of defraying committee expenses. President Drake said that this matter might very well be left to the discretion of the committee.

Trade Practice Committee

Henry E. Longley, of Wilmington, N. C., reporting as chairman of the committee on trade practices, said: "Due to uncertainty as to the attitude of the Federal Trade Commission toward the trade practice rules, the committee thought it wise to delay the submission of the rules adopted at the last national convention until the situation clarifies itself. The committee feels that the results of recent conferences are such as to justify holding a conference for the retail division of the plumbing and heating industry and would recommend that this convention ask the board of directors to consider at its fall meeting the possibility of making arrangements for such a conference."

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Utah Town Adopts Plumbing Code

Springville, Utah, has adopted the plumbing code now in force at Provo and other cities in the state. W. A. Rupea, executive secretary of the Utah State Association, met with the mayor and council of American Fork, recently, and urged that the same code be adopted by that city. A committee was appointed to investigate the code and make recommendations.

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For years the Dahlquist Mfg. Company has produced industrial copper boilers and household hot water service units whose high standard of performance could not be easily matched.

Today Dahlquist exclusive patents have world recognition, presenting the buyer with the most recent developments in both automatic hot water storage systems and in industrial copper tanks.

DAHLQUIST TURBO-AQUATHERM
(U. S. Patent No. 1,762,215)

This Dahlquist patent offers the trade something new, an automatic storage unit that will always supply clean hot water that may be safely used for drinking and cooking as well as every other purpose. Accumulation of sediment is automatically prevented. The danger of burnouts eliminated and the thermal efficiency greatly increased.

Architects and engineers may be assured that their requirements for industrial copper boilers will be carefully carried out by us regardless of size or technical difficulties involved. May we quote on your requirements?

DAHLQUIST MFG. COMPANY
60 West 3rd Street :: Boston, Mass.

STOCKHAM FITTINGS
—for straight lines and strength

Woman's Page

The success of the Milwaukee convention was a result of the work of the National president and her officers, the Milwaukee ladies and the visiting women at the convention who are always ready to help promote the work of the auxiliary. The National organization has been most fortunate in its selection of presidents. Each one has done all that can be asked of any officer. When the National president has news for the membership of the National auxiliary, she sends it to the business papers. Do you do your share? Send in news of your own activities so that others may know what your group is doing.

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Past National Presidents' Club Is Formed

At Milwaukee, a Past Presidents' Club was organized. The following officers were elected: Mrs. W. E. McAndrew, Tampa, Fla., president; Mrs. J. J. Corcoran, Jersey City, N. J., first vice president, and Mrs. Charles Zimmerman, Union City, N. J., secretary. Charter members also consist of Mrs. E. V. Hornbrook, Kansas City, Mo.; Mrs. Charles Keiser, Boston, Mass.; Mrs. J. O. Stapf, Albany, N. Y.; Mrs. R. G. Schwartz, New Orleans, La.; Mrs. J. M. Simmons, Wichita, Kans.; Mrs. F. C. Stiller, Minneapolis, Minn.; Mrs. Oscar Johnson, Minneapolis, Minn.; Mrs. Charles Pelunek, Milwaukee, Wis.; Mrs. William Kuehne, St. Louis, Mo.; Mrs. Robert Liss, Chicago, Ill.; Mrs. I. E. Henderson, Kansas City, Mo.; Mrs. E. J. Ewing, Washington, D. C.; Mrs. E. E. Monahan, St. Louis, Mo.; Mrs. Margaret Mesnard, Detroit, Mich., and Mrs. J. Feiner, Racine, Wis.

Michigan Auxiliary Honors Mrs. Hornbrook

Mrs. E. D. Hornbrook

In appreciation of her many years of service as president of the Women's Auxiliary to the National Association of Master Plumbers, the Michigan auxiliary recently presented a testimonial to Mrs. E. D. Hornbrook, of Kansas City, Mo. An acknowledgment to the Michigan members is sent by Mrs. Hornbrook through these columns as follows:

"Your testimonial of esteem is dear to my heart, something I shall cherish forever."

Cleveland Auxiliary Holds July Meeting

The Cleveland, Ohio, Women's Auxiliary held its July 8th meeting in the Builders' Exchange building. After a short business meeting, a pleasant evening was spent playing cards, with Mrs. Sullivan and Mrs. Reid taking the honors. Hostesses for the evening were Mrs. Fagin and Mrs. Eberling.

Portland, Ore., Auxiliary Holds Meetings

The Portland, Ore., Women's Auxiliary held its May meeting at the home of Mrs. W. T. Finnigan. Luncheon was served following the meeting. Mrs. G. Orlo Kendall assisted as hostess. The ladies sewed most of the afternoon.

Recently a card party was held by the Portland auxiliary at Kelly's hall. There were about 60 in attendance. Mrs. S. V. Pollitt, Mrs. G. O. Kendall and Mrs. R. D. Rennie were in charge of this pleasant social affair.

Entertain Denver Auxiliary Members and Husbands

Mr. and Mrs. Vincent Kandorf entertained the members of the Ladies' Auxiliary to the Denver Master Plumbers' Association, and their husbands, at their summer home at Grand Lake, over the week-end of June 27th. A delicious fried chicken dinner was served Saturday evening, followed by card games.

Those present, besides the host and hostess and their daughter Gertrude, were Messrs. and Mesdames Frank Bordeau, J. P. Brickey, C. R. Cooper, Robert Demmer

The Milwaukee convention that we looked forward to for the past year is now a happy memory.

Too much praise cannot be given the members of the Milwaukee Master Plumbers' Association and the ladies of the auxiliary for their untiring efforts to make this convention the success it was. The spirit of hospitality and friendship prevailing will ever be remembered and the day spent at Kohler was a rare treat, for all who were privileged to attend.

To the members of our Women's Auxiliary, National Association of Master Plumbers, I extend my sincere thanks for the wonderful co-operation given me during the two years it was my privilege to serve as national president.

The spirit of loyalty expressed by our auxiliary members at the recent convention will be an unfailing source of gratitude to me. And it is my wish that members of the entire national auxiliary pledge to the incoming officers their continued and hearty co-operation.

I want to thank DOMESTIC ENGINEERING *for the generous and fine publicity accorded me throughout my term of office, for it is through the columns of the press that our activities have been given proper space, which in itself creates for better understanding.*

May the Women's Auxiliary continue in happiness and prosperity!

Mrs. W. E. McAndrew.

and son, Kenneth, Frank Hanlin, R. A. Hurley, John Hensler, A. S. Hubbell, V. A. Kiser and baby, H. H. Mellema and baby, Guy Stocking and twins Gale and Glen, Fred Samson, Frank Welle, Mrs. William Hensler, Mrs. Stoetzel, Mr. Seeley and E. Walsh.

Honors at cards went to V. A. Kiser and Frank Bordeau, Mrs. John Hensler and Mrs. Fred Samson.

Rain Stops Boston Auxiliary's Outing

The final gathering of the season, an outing and a shore dinner, was to have been held at Salem Willows, Mass., on Wednesday afternoon, June 10, by the Boston Women's Auxiliary. Because of rain the outing was canceled and a meeting was held at the home of the president, Mrs. A. I. Russell, in Newton. The meeting was well attended and was followed by a delicious luncheon.

Cincinnati Women Hear Report on National Convention

The regular monthly meeting of the Cincinnati, Ohio, Women's Auxiliary was held at the American building, on July 7. Mrs. A. J. Murphy, delegate to the national convention, gave an interesting report. An afternoon and evening social was held on July 15 at the home of Mrs. George Brietenbach. Mrs. Brietenbach was assisted by Mrs. M. R. Manley, Mrs. Fred Smith and Mrs. William Tillett.

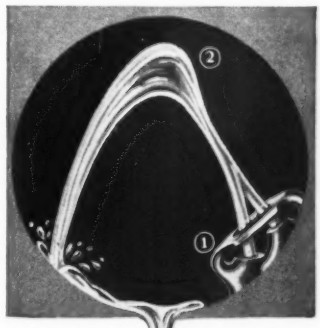
Indianapolis Women Hold Two Meetings

The Indianapolis, Ind., Women's Auxiliary held its regular June meeting at the home of Mrs. Glen Petty. There were 10 members present. Cards and bunco were enjoyed following the business session. Ice cream and cake were served after the games. A meeting of the auxiliary was also held at the summer cottage of Mrs. Richard Bardy on Friday, July 10.

This affair was attended by a good-sized group, and the day was an extremely enjoyable one.

Top picture, left to right: Mesdames J. B. Hawley, Sacramento; J. V. Young and Alexander Coleman, San Francisco; J. M. LaDieu and daughter, Shirley May of Los Angeles; and Thomas Hogan and Charles M. Swinnerton, also of Los Angeles. Bottom picture: Mesdames W. H. Timmons, Richmond; W. D. J. Evans, of Oakland, president of Alameda County auxiliary; A. M. Flood, Wilmington; Arthur Johnson, Berkeley, vice president of Alameda County auxiliary; J. H. Javons, and L. A. Bryant, both of Berkeley; James F. Mauzy, Walnut Creek. Photos taken at the annual convention of the California State Association of Merchant Plumbers, held recently at San Diego

ONLY A HALSEY TAYLOR PROVIDES THESE *features* . . .



1. The two-stream projector is a distinctive Halsey Taylor feature! The drinking mound is formed by the converging of two streams and this localized mound guarantees absolute sanitation! Fingers or lips do not come in contact with or contaminate source of supply. Practical, safe, non-squirting too!

2. An automatic device maintains a constant height in the drinking stream even though line pressure varies. Stream never too high, never too low—always at convenient drinking height!

Made, sold and serviced by the largest organization of its kind devoted exclusively to the manufacture of drinking fountains . . . Featured by variety in design as well as scientific construction!

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THE SPECIFICATION FOR SANITATION

ALBERENE'S Offering for the Modern Home

44" x 24" x 16"

WASHTRAY

Large Inside Capacity
Weighs Less
Costs Less

Alberene Stone Company

153 West 23rd Street

NEW YORK

New Trade Literature

Stream and Spray Cleaner and Gasoline Torch

Otto Bernz Co., Inc., of Newark, N. J., has issued two folders, one illustrating and describing a new stream and spray cleaner, and the other describing and showing a new gasoline torch with a burner which is constructed in such a manner that the flame can be turned down very low and still be under perfect control of the pressure.

Silent Automatic Corp.'s Folder

Silent Automatic Corp., Detroit, Mich., has distributed a folder containing descriptive material pertaining to the latest addition to its line of oil burning water heaters. A cut-away view shows the interior construction and a table of specifications is given.

New Book of Minneapolis-Honeywell Regulator Co.

A very attractive book of thirty-two pages has been prepared by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., which gives complete details of the company's new automatic orifice system of individual temperature control for public buildings, offices, hospitals, schools, hotels, apartments and large residences. The book is printed on a fine grade of paper and contains an abundance of illustrations. Drawings are used to show the mechanical features of the valve.

Left to right: George A. Kearney, Evanston, Ill.; W. Howard Gottlieb, president, Washington, D. C., association; L. Brunner, Chicago; and Bernard Braum, St. Louis, Mo. Photos taken at the annual convention of the Heating and Piping Contractors National Association, held recently at Louisville

Book on Use of Coke as Fuel

An interesting sixteen page book on the use of coke in magazine feed heaters has been developed by the Spencer Heater Co., Williamsport, Pa. The growing availability of coke in many sections of the country makes this a most timely publication. It is generally conceded that coke is a clean fuel of high heating value.

Catalog of Pressure Reducing and Regulating Valves

A. W. Cash Valve Mfg. Corp. of Decatur, Ill., has issued a twenty-four-page catalog, 8¾ x 10¾ in., illustrating and describing its products, including pressure reducing and regulating valves, strainers, relief valves for hot and cold water, air etc., water regulators and water regulating valves, pump governors, automatic ammonia expansion valves and damper regulators for hot water boilers.

"Water, Water Everywhere!"

American Asphalt Paint Co. of Chicago, Ill., has just issued a de luxe book entitled "Water, Water Everywhere!" The contents of this book consists of a well written essay on water accompanied by more than forty reproductions of paintings, in which water is the predominant feature, such as "The Bridge," "The Placid Brook," "Water Beauties," "Cloud Symphony," "The Iridescent Fountain,' "Fantastic Water Sculpturing," "Niagara Falls," "Mary's Well in Nazareth," "Venetian Lagoon," "The Ice Cave," etc. The printing, the reproductions of the paintings, and the paper stock are all of the highest grade, making this book an attractive sample of the modern printer's art.

Catalog of Plumbers' Brass Goods

The Plumbers' Brass Goods Division of Scovill Manufacturing Co., Waterville, Conn., issued its catalog J, under date of July 1, 1931. This book consists of 224 pages, 9 x 11 ins., bound in a black leather, loose-leaf cover. It is divided into eleven sections as follows: 1—A to C, including valve balls, fuller caps, chains, cones, etc. 2—Brass trap covers, elbows, flanges, floats and faucets. 3—Flush valves. 4—Funnels, holders, links, nipples, nuts. 5—Offsets, supply pipes, plugs, float rods, and closet screws. 6—Showers, fixtures, accessories. 7—Fuller stems, stops, sink strainers, tail pieces. 8—Traps. 9—Tubes, air valves, washers. 10—Lavatory wastes, wastes and overflows. 11—Brass bolt and nut combinations, cast brass fittings, etc. The book is printed on highly glazed paper and copiously illustrated with high grade halftone engravings.

Display Boards of the Borden Co.

The Borden Company, Warren, Ohio, is distributing blotters carrying reproductions of the display boards which are being used by its jobbers to acquaint pipe tool users with the company's line of die stocks and pipe cutters. The Borden company has prepared five different display boards of this kind, and the blotters carry reproductions of each display.

Left to right: E. L. Price, Tutwiler, Miss.; and J. D. Lanham, William Lanham and A. H. Borsh, all of Greenwood. Photo taken at the convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers, held recently at Jackson

Bulletin of Buffalo Forge Co.

A bulletin is being distributed by the Buffalo Forge Co., Buffalo, N. Y., called Bulletin No. 2840, which gives complete information about the company's unit air washers. A table of ratings appears on the back page of the bulletin.

"Beautiful and Dutiful Bathrooms and Kitchens"

Kohler Co., Kohler, Wis., has published a new forty-page booklet, "Beautiful and Dutiful Bathrooms and Kitchens." While this booklet is not intended to be a complete catalog, yet it contains a typical showing of the company's products and presents in a general way valuable information for the home owner pertaining to plumbing and interior decoration. For instance, there is a comprehensive color chart, suggesting new and interesting bathroom color combinations, with a choice of colors for floor, walls, upper walls and ceiling, hangings and trim-

mings. Two complete colored bathrooms are shown. Utility and how to achieve it in the home is the keynote of the entire booklet. Ten matched sets of fixtures and fittings are illustrated and nine modern bathroom floor plans are offered.

New Catalog of Moeller Instrument Co.

Moeller Instrument Co., Brooklyn, N. Y., successors to A. E. Moeller Co., has issued a new catalog, No. 35, covering its line of mercury filled dial indicating thermometers.

"A Shop on Wheels"

Crane Co., Chicago, is distributing a folder which explains in detail the new idea of "A Shop on Wheels" for the plumbing industry, which the company recommends and offers to its qualified contractor dealers. Complete details are given in this folder concerning the assistance Crane Co. is offering its qualified dealers in equipping such a truck.

New Literature of Bell & Gossett Co.

The Bell & Gossett Co., Chicago, has prepared a number of new pieces of descriptive literature for distribution by its dealers to prospective customers. An attractive envelope stuffer tells the advantages of having an abundant supply of hot water in the home at all times. A small manual of thirty pages contains much valuable information on the company's line of indirect domestic water heaters. The company's double duty indirect water heater system is described in another pamphlet, together with an illustration of a typical installation.

Pamphlet on Water Hydrants

The John C. Kupferle Foundry Co., St. Louis, Mo., has distributed a small pamphlet describing its various types of hydrants.

Bulletin of Ludlow Valve Mfg. Co.

The Ludlow Valve Mfg. Co., Troy, N. Y., recently published Bulletin No. 101, which contains complete descriptive information on its new type of valve for power plant applications. The bulletin contains a number of photographs and drawings which add considerably to its value.

Envelope Stuffer of Toledo Pipe Threading Machine Co.

An envelope stuffer recently prepared by the Toledo Pipe Threading Machine Co., Toledo, Ohio, gives detailed descriptive information concerning its power pipe machine for one to four inch pipe.

Catalog No. 2 of Walworth Co.

Walworth Co., Boston, Mass., recently distributed copies of its Catalog No. 2, covering its line of service cocks designed for gas and similar services. The catalog contains twelve pages and is bound in a heavy paper cover.

Information About Lead

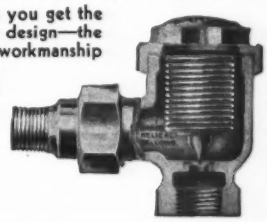
"Useful Information About Lead"—published by Lead Industries Association, 420 Lexington avenue, New York, cloth bound, 104 pages, illustrated, price $.50 post paid. This book tells the concise story of lead and its principal uses and should be of interest and practical value to every present or prospective user of lead and the multitudinous products derived from it. Short chapters are devoted to the major industries consuming lead and the part lead plays in them, as well as the history, mining, smelting and refining of the metal, best indicated by the following chapter titles: Mainly Historical, From Mine to Finished Metal, Grades of Virgin Lead, Physical Properties of Lead, Lead Alloys, Chemical Corrosion Resistance of Lead, Lead Compounds, Lead Paints, Metal Protective Lead Paints, Lead Storage Batteries, Lead Covered Cable, Lead in Plumbing, Ammunition, Architectural and Ornamental Qualities, Some Miscellaneous Uses, Industries Using Lead. The table of properties of lead is probably the most complete and up to date ever published, including mechanical, thermal, electrical, optical and other constants.

SARCO Heating System

is made with a heaping measure of quality and sold at the lowest possible price for equal quality.

If you want quality in anything, you have to pay for it, and you know that buying quality is the only true economy.

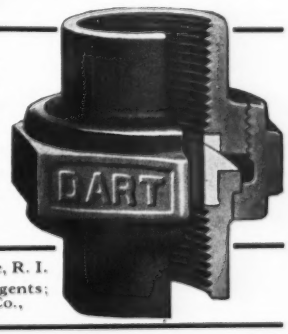
In the Sarco Heating System you get the best of engineering practice in design—the highest order of materials and workmanship—and proven ability to meet and satisfy every condition of long, hard service. Write for Catalog M-40.



SARCO CO., Inc.
183 Madison Ave. New York, N. Y.
Branches in Principal Cities

DART UNIONS
for Double Wear

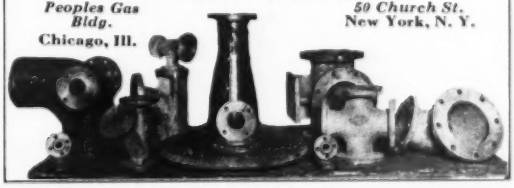
The experienced pipe man, the one who has handled all kinds of unions usually swears by Dart because he's seen Darts stand up on the hard jobs while ordinary unions fall down on the easy ones. *From your jobber.*



E. M. Dart Mfg. Co., Providence, R. I.
The Fairbanks Company, Sales Agents; Canadian Factory, Dart Union Co., Limited, Toronto, Canada

Bell and Spigot Pipe and Fittings from 4" to 48."
Cast Iron Flanged Pipe from 3" to 84".
Cast Iron Flanged Fittings from 1" to 84".
Cast Iron Flanges from 1" to 84".

Lynchburg Foundry Co.
General Office, Lynchburg, Va.
Peoples Gas Bldg. Chicago, Ill.
50 Church St. New York, N. Y.



WATTS

Watts Hot Water House Heating Unit; Water Pressure Regulators; Diaphragm Relief Valves; Strainers, Boiler Water Feeders, etc., can be installed with the assurance of entire satisfaction. For back of this organization is a reputation for square dealing sustained over a period of 57 years. Write for catalog.

WATTS REGULATOR CO.
249 Lowell Street -:- Lawrence, Mass.
John G. Kelly, Inc., Distributors, 210 E. 45th St., New York
W. H. Cunningham & Hill, Ltd. Canadian Distributors
269 W. Richmond St., Toronto, 2, Canada

This is the Pop-Up Waste the plumbers DEMAND

"The WISECO"

Simple and Durable

Positive in Action
Built for Quality

J. B. WISE, INC.
Watertown, N. Y.

Your jobber can supply you

MODERN HEATING EQUIPMENT

for all types of Buildings

HOFFMAN VALVES
HOFFMAN CONTROLLED HEAT
HOFFMAN-ECONOMY PUMPS

Write for Catalog

HOFFMAN SPECIALTY CO., INC.
No. 2 Vacuum Valve DEPT. RX-68 WATERBURY, CONN.

MYERS Engine Driven Water Systems

Summer homes and cottages, lodges, camps, farms and other isolated points where electrical current is not available find Myers Self-Oiling Engine Driven Water Systems ideal for power water facilities. Self-Oiling deep or shallow well units complete with engine, provide opportunities for new and profitable water system business. Ask for catalog.

THE F. E. MYERS & BRO. CO., Ashland, Ohio

Josam TRADE MARK REG.
PRODUCTS
APPROVED SANITARY SPECIALTIES
JOSAM MANUFACTURING COMPANY
4904 Euclid Bldg. Cleveland, Ohio
FACTORY: MICHIGAN CITY, INDIANA
BRANCHES IN ALL PRINCIPAL CITIES
Floor and Roof Drains, Sewer Valves, Closet Outlet Connections, Interceptors, etc.

Business Changes

Fond du Lac, Wis.—W. M. Bresnehan, who has been engaged in the plumbing business here for many years, has moved from 26 E. First street, to 169½ East First street. The new location is owned by Mr. Bresnehan and includes a shop and three-car garage. The shop is 22 by 60 ft.

Milwaukee, Wis.—The S. V. Hanley Co. has been formed at 1653 N. Farwell avenue, to carry on the plumbing and heating business established by the late S. V. Hanley. The new firm has been incorporated by Edward V. Hanley, Mary Hanley and Omar T. McMahon, and is capitalized for $25,000.

Barnesville, Minn.—Gunness & Lee, Inc., has been chartered by Harold D. Gunness and Orrris S. Lee and has purchased the plumbing, heating and hardware business of the Atkinson Hardware Co. This business was established 33 years ago by W. S. Atkinson, who has now retired from active business.

Onida, S. D.—Boyd O. Smith, who has for several years been manager of the W. O. Smith Hardware Co., has severed his connection with that firm, and has engaged in the plumbing and heating business.

Salem, Ore.—The management of the plumbing and heating business of A. L. Godfrey has been taken over by Fred Kurtz Godfrey.

Morrisville, N. Y.—M. E. Rich has bought the interest of Mr. Parker in the plumbing and heating firm of Parker and Rich and will continue the business in the future. Mr. Parker is retiring from active business because of ill health.

New Business Ventures

Portland, Ore.—Robert Acton has engaged in the plumbing and heating business at 1266 East 18th street.

St. Louis, Mo.—The Bellinger Plumbing & Heating Co. has been incorporated by John Bellinger, 7713 Virginia street, and others.

San Mateo, Calif.—Mark Dillon, 236 Barenson avenue, has engaged in business, under the style of West Side Plumbing Shop, at 1240 El Camino Real.

Detroit, Mich.—The Good Heating Shop, Inc., has been chartered at 8307 Livernois avenue, with a capital stock of $1,000, to engage in the plumbing and heating business.

Detroit, Mich.—Ralph Peckham has incorporated his plumbing and heating business at 650 West Baltimore avenue, with a capital of $50,000, under the same name.

Rochester, N. Y.—The Madlen, Gundle and Kulp Plumbing Company has been organized and incorporated, with

Left to right: C. D. Hill and A. A. Collins, both of Laurel, Miss., and Lou Whitten, Woodward-Wanger Co., New Orleans. Photos taken at the convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers, held recently at Jackson

a capital of $10,000, to establish and operate a plumbing engineering and contracting business. Principals of the new firm are R. G. Madlen, Everett U. Kulp and Vincent Peter.

New York City—Joseph S. McNamara and associates have organized and incorporated the firm of J. S. McNamara, Inc., with a capital of $5,000, to establish and operate a plumbing engineering and contracting business in Queens County. The new concern is represented by I. Siegel, 51 Chambers street.

Ithaca, N. Y.—Donohue-Halverson, Inc., has been chartered, with a capital of $10,000, to establish and operate a plumbing engineering and contracting business. The new firm is represented by the local law firm of Cobb and Cobb.

Buffalo, N. Y.—The B. and P. Plumbing and Heating Company has been organized as a partnership by Arthur A. Bayley, 221 Auburn avenue, Buffalo, and James L. Baker, 115 Marjorie drive, Kenmore, N. Y., to establish and operate a plumbing and heating engineering and contracting business.

White Plains, N. Y.—The Singer Engineering Company has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing engineering and contracting business. The new firm is represented by Donald Tepp, local attorney.

Patchogue, N. Y.—G. Frederick Dege and associates have organized and incorporated the firm of G. Frederick Dege, Inc., with a capital of $20,000, to establish and operate a plumbing engineering and contracting business. H. J. Schoenfield, local attorney, represents the new concern.

New York City—The J. Kelly Plumbing Company has been organized and incorporated, with a capital of $10,000, by Jason Kelly and associates, to establish and operate a plumbing engineering and contracting business in Queens. The new firm is represented by A. M. Millman, 154 Nassau street.

Portland, Ore.—The Kendall Plumbing Co., 7853 82nd street, S. E., has engaged in business under the management of R. J. Endicott and W. H. Schmidt.

Portland, Ore.—The Western Heating Co. has engaged in the plumbing and heating business under the management of J. Wittauer.

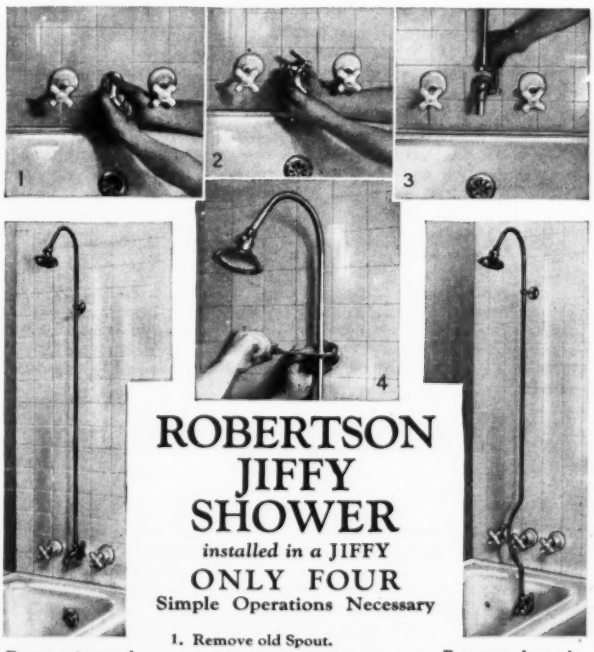
Los Angeles, Calif.—The All-Ready Plumbers have engaged in business at 967 Venice boulevard under the management of Jesse Eugene Scruggs, 1411 Valencia street.

Los Angeles, Calif.—The Blumve Company has engaged in the plumbing, heating and hardware business at 139 S. Vermont avenue under the management of M. L. Pellicciotti of 815 South Citrus avenue.

Cedarhurst, N. Y.—The firm of Julius S. Weston, Inc., has been chartered with a capital of $10,000 by J. S. Weston and associates to establish and operate a general plumbing engineering and contracting business. Daniel Levy, 110 William street, New York City, represents the new concern.

A Correction

The following letter has been received from I. Burack, Inc., Mount Vernon, N. Y.: "In your June 27th issue, under the heading of 'New Business Ventures,' you mentioned the firm of I. Burack, Inc., as established in the plumbing contracting business. We are not plumbing contractors, but strictly jobbers in plumbing and heating materials."



ROBERTSON JIFFY SHOWER

installed in a JIFFY

ONLY FOUR

Simple Operations Necessary

1. Remove old Spout.
2. Attach new Robertson Spout with diverting lever.
3. Connect riser pipe to spout.
4. Fasten adjustable supporting wall flange.

For over rim supply. ROBERTSON Jiffy Shower S-700 installed complete without breaking into walls or disturbing piping.

For top nozzle supply. ROBERTSON Jiffy Shower S-704 with ball joint on spout to take care of taper on tub.

H. E. ROBERTSON COMPANY

2533 N. Ashland Ave. Chicago, Illinois

PHONE LINCOLN 1120

A SOUTHERN PLUMBER

SAVED $100

ON A HOTEL JOB BY USING OUR

4" - 90° Tee Y Ferrule

Outlets Take Lead or Iron Pipe

Single or Double, ½" or 2" In Any Combination.

Used Vertically or Horizontally.

One Outlet May Be Used For a Vent.

Fifty of these handy fittings caulked vertically between the closets and a ¼ bend saved a thinking plumber $100. Think and save on your next hotel or apartment layout.

The RICHMOND FOUNDRY & MANUFACTURING CO. Inc.

RICHMOND, VIRGINIA

FOR GOOD

Cast Plumbing Specialties

"A DEPENDABLE SOURCE OF SUPPLY"

Stop pipe thread leaks with SMOOTH-ON No. 1 in a SMOOTH-ON CLAMP

Sizes for 1-in. to 12-in. pipe.

QUICK, easy, cheap Holds for the life of the line—any pressure, any temperature, iron, brass, or copper pipe. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

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THE ONE SURE SOURCE OF SUPPLY
COPPER IS PERMANENT
ASK YOUR WHOLESALER FOR PRICES AND DETAILS
RIVERSIDE BOILER WORKS INC.
CAMBRIDGE, MASS.

36%	60%	4%
MATERIAL	LABOR	PROFIT
40%	51%	9%

How do You Spend Yours?

TWO contractors were handed $100 each to install valves on two identical jobs. Any remaining surplus would be theirs.

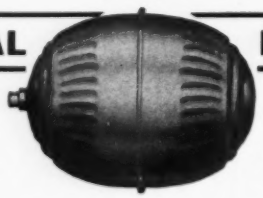
One decided to save money on materials. So he spent $36 for valves which cost him $60 to install. This left him a profit of $4.

The other decided that good materials would cost less to install so he spent $40 for O-B valves and they cost only $51 to install. This left him a profit of $9. How do you spend yours?

Ohio Brass valves are so designed and machined as to give "an extra profit in the make-up".

Ohio Brass Co.
1189-V Mansfield, Ohio

FEDERAL FLOATS



Those factory jobs or stores, hospitals, public buildings, etc., where floats *must* stand severe handling, install the Federal. It's made by Reichert and it's made to meet the unusual service. *From your jobber.*

THE REICHERT FLOAT & MFG. COMPANY
2238 Smead Avenue .. Toledo, Ohio

Pipe —— Lines
Connected by LYT

REMEMBER WAY BACK WHEN.

When the classiest apartments for rent were those that had old rose wall paper in the dining room and a big heating stove with a fat belly and glowing eyes in the parlor?

Remember when apartments were called flats?

When plate rails came in? And built-in china closets?

When the coal shed out at the back of the lot was the goal of many a winter's night trudge?

Do you recall the bathroom window that was circular and made of many colored-glass?

Remember when apartments—pardon us, flats—began to advertise "steam heat," "hot water heat" and "janitor service"? Hot dog! You **were** somebody if you lived in one of them.

And then finally the landlords broke down and started to furnish "curtain rods"?

When "outside icing" became the big selling point about ten years ago?

And when the big thing was "built-in plumbing?" That, said the landlord, was top—the best that homes would ever get.

J. V. M., Chicago.

And one of these days we'll be remembering way back when there was such a thing as "face-lifting" for the ladies—and modernizing for the home.

SAXOPHONES TO THE RIGHT OF US . . .

From all parts of the country, the attack on the saxophone continues with unabated fury and good humor.

The "Washington Dirge," for example, says: "A saxophone is produced in America every forty seconds, so we are told. It was estimated that if they were all piled in one place in the Sahara Desert, it would be a very good idea."

And the "Chanute Tribune" emits this wail: "A fellow has been arrested in Concordia on the charge of stealing a saxophone. What's the country coming to that anyone who takes a saxophone is branded a robber? The next thing you know it will be considered a misdemeanor to assault a ukulele player."

> A nice sense of distinction is exhibited by a Chicago apartment landlord who has refused to lease to "musicians and saxophone players."

And the "Auxvasse Review" gives this rather dirty dig. Referring to the heading of a news story concerning Mr. Rudy Vallee, which read: "The Story of a Saxophone Player Who Made Good," the "Review" wants to know: Good what?

JUST FRIENDLY REPARTEE

A fat man and a thin one had been having an argument, and had finally descended to personalities, with the thin man the winner as usual.

"From the look of you," said the fat man, "there might have been a famine."

"Yes," said the thin man, "and one look at you would convince anyone that you had caused it."

The chances are that the young fellow who wishes he were dead either can't marry the girl he wants—or has done so.

L Y T.

Bath a Day Movement

THE difficulty with a great deal of the advertising that is done by retailers is that it leaves the prospect with nothing to do short of coming into the store with the intention of buying.

This we do not do in connection with products of a high unit price, unless we are driven by need. Yet if we can be brought into contact with those products, even though we do not realize that we need them in a more modern form than we now have them, there is a chance that we can be sold.

The proposition, then, is to get the prospective customer to come in, to telephone, or to write, for something that is offered. Preferably it should be a presentation of something useful—or of useful information.

We believe that if the contractor's newspaper advertising carried a coupon, or a statement, to the effect that a free copy of a fascinating, humorous book, entitled, "The Story of the Bath," profusely illustrated, would be given to any one asking, the response to that advertising would be greater, and the contractor would be making contact with new prospects and old customers which would open new sales possibilities to him.

Ask for a free copy of "The Story of the Bath," if you've never read it.

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Thin ice is the undertaker's friend.

* * *

Even the clock that does its duty has time to strike.

* * *

Don't judge the ham by its canvas cover.

* * *

There is no vacation in the school of experience.

* * *

Our idea of a breadwinner is a girl who takes the cake.

* * *

A prosperous looker isn't always a prosperous feeler.

* * *

The pill of adversity is never sugar-coated.

* * *

It's a cold day when the palm-leaf fan gets left.

* * *

It doesn't require much effort to gamble.

* * *

It's all up with the artist who can't draw his breath.

* * *

The cellar excavator always gets in his work.

* * *

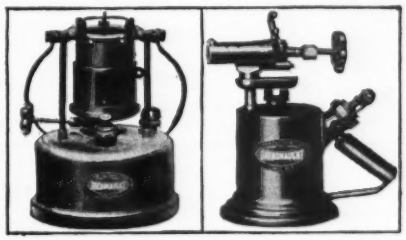
Spare hours are the shortest in a busy man's day.

◆

Anaconda, Mont.—The Schmidt-Hasley Plumbing & Heating Co. has been incorporated, with a capital of $50,000, by Wm. O. Schmidt, J. A. Hasley and P. F. Fitzgerald.

Sioux Falls, S. D.—James Ferris & Son, plumbing and heating contractors, have established a shop at 112 East Third street, Yankton, S. D., which will be in charge of R. E. Ferris, who has until recently been connected with the American Plumbing & Heating Co., of Minneapolis, Minn.

A NEW LINE..
of WALL products
at a NEW LOW PRICE



Write for complete information. Ask for our plumbers' circular.

THOUGH lower in price than ever before, each is a newly developed WALL product designed to serve best your most particular needs, without the sacrifice of typical WALL quality features! It will pay you to get in touch with your jobber at once—or for jobbers to get in touch with us.

P. Wall Mfg. Supply Company · Pittsburgh, Pa.

SINCE WALL SUPERIOR PRODUCTS 1864

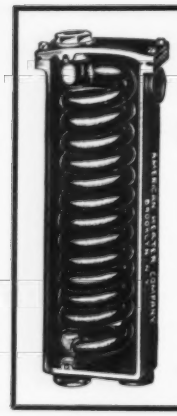
DREADNAUGHT
"Service with Safety"
BLOW TORCHES . . . FURNACES AND OILERS

A Choice of the Best

That's what you get in replies from a DOMESTIC ENGINEERING Classified Advertisement.

No matter what your problem—if you want a job, or a man for a job, if you have some used equipment to sell or want to buy some, if you want to know what the leading books on plumbing and heating are, if you want bids on a job—a DOMESTIC ENGINEERING Classified Advertisement will solve that problem.

Domestic Engineering
1900 Prairie Avenue, Chicago, Illinois



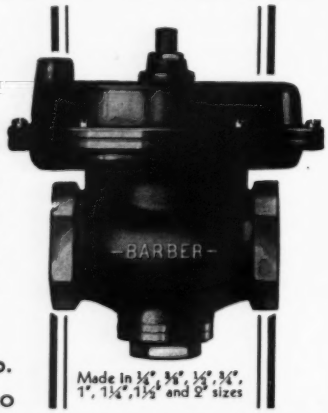
The American Heater Where the Water Demand Is High—

And where the demand for economy is great. Write the American Heater Co. today for complete information on its water heating equipment.

American Heater Co.
60 Fulton St. Brooklyn, N. Y.

Order a sample *NOW* » »

Other plumbers and heating contractors have tried the Barber Gas Pressure Regulator and found that it does everything we claim for it and more. It cuts high gas bills, provides maximum safety and greatest efficiency. Write us today, or ask your jobber.



Made in ¾", ⅜", ½", ¾", 1", 1¼", 1½" and 2" sizes

The Barber Gas Burner Co.
3702-4 Superior Avenue
CLEVELAND • • • OHIO

Overtons Are Ideal For Replacement
(EXTRA HEAVY OR STANDARD)

Don't let a remodeling job get by you that you don't inspect the roof flashings. If they're in need of replacement, you'll find Overtons particularly well adapted because they go on so quickly.

Your jobber can supply you with Overtons.

Order today.

BUTLER MFG. CO.
Minneapolis, Minn.

CHALLENGE BRAND

PIPE NIPPLES

WROUGHT IRON
STEEL
BRASS
COPPER

It's easy to see why CHALLENGE BRAND PIPE NIPPLES are preferred. They are perfectly threaded and the threads checked against *Briggs* Standard. They are uniform in length too, and free from burrs, sloppy threads and nicks. Every CHALLENGE BRAND NIPPLE is coated with a high grade rust resisting oil.

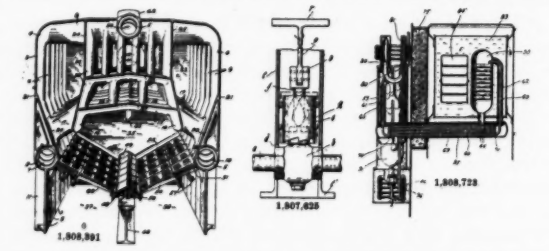
FRICK-REID SUPPLY CORPORATION
Nipple Division
Sandusky and Robinson Sts. N. S. Pittsburgh, Pa.

PATENTS

Heating Department

1,808,391. Sectional Heater. Joseph A. Waddell, Williamsport, Pa., assignor to Spencer Heater Company, Williamsport, Pa., a Corporation of Pennsylvania.

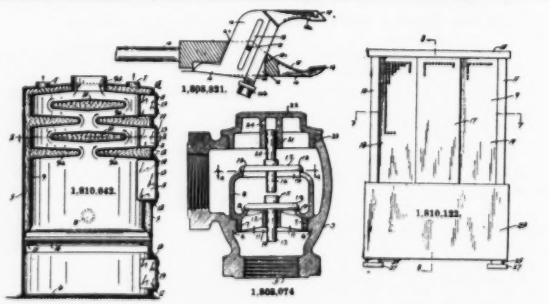
1,807,625. Valve Wrench. Henrick J. Hjorth, Woburn, Mass.



1,808,723. Refrigeration. Carl Georg Munters, Stockholm, Sweden, assignor to Electrolux Servel Corporation, New York, N. Y., a Corporation of Delaware.

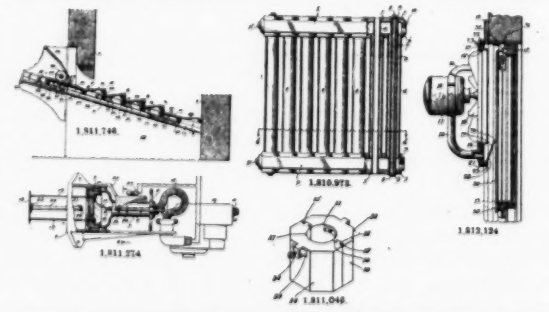
1,808,821. Alligator Wrench. José Rubalcaba, Los Angeles, Calif.

1,810,642. Water Heater. Cecil G. Carlson, Willmar, Minn.



1,808,074. Valve. Frederick F. Rike and William P. Huffman, Dayton, Ohio, assignors to Buckeye Iron and Brass Works, Dayton, Ohio., a Corporation of Ohio.

1,810,122. Radiator Cover. Albert Edgar Blackman, Mount Vernon, N. Y.



1,811,746. Stoker. Edmund J. Clerget, Chicago, Ill., assignor to American Engineering Company, Philadelphia, Pa., a Corporation of Pennsylvania.

1,810,973. Radiator. John B. Lukomski, Detroit, Mich.

1,812,124. Portable Ventilating Outfit. Arthur G. Sutcliffe, Chicago, Ill., assignor to Ilg Electric Ventilating Company, Chicago, Ill., a Corporation of Louisiana.

1,811,274. Ignition Mechanism for Oil Burners. James N. Macrae, Stamford, Conn., assignor to Petroleum Heat and Power Company, New York, N. Y., a Corporation of Delaware.

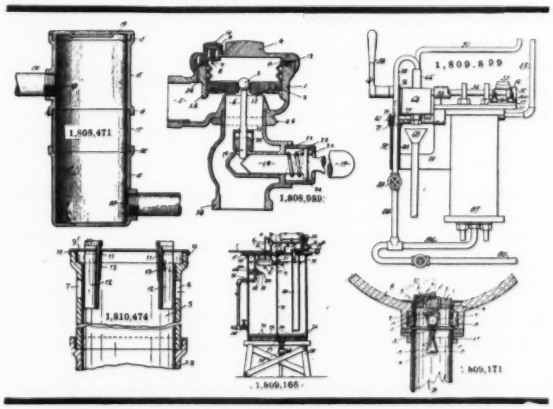
1,811,046. Emergency Pipe Cutter. Harry Goldhagen, New York, N. Y.

Plumbing Department

1,808,471. Waste Trap. William J. McCarthy, Chicago, Ill.

1,808,989. Flush Valve. Jesse D. Langdon, Los Angeles, Calif.

1,809,899. Electrically Operated Water Heater. Herbert Heroy, Belmar, N. J.



1,810,474. Septic Tank. Irwin Gutman, Pittsburgh, Pa.

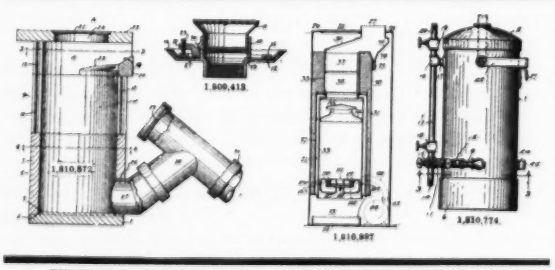
1,809,166. Apparatus for Automatic Water Softeners and Chemical Feeds Therefor. Earl S. Henry, Medford, Okla.

1,809,171. Drain Plug. Ole Alonzo Larsen, Salt Lake City, Utah.

1,810,572. Sewer Inlet. Ernest H. Paffrath, St. Louis, Mo.

1,809,413. Drain. Joseph Hirshstein, Cleveland, Ohio, assignor to The Josam Manufacturing Company, Cleveland, Ohio, a Corporation of Delaware.

1,810,887. Gas Water Heater. Aloysius T. Sponar, Conshohocken, Pa., assignor to John Wood Manufactur-



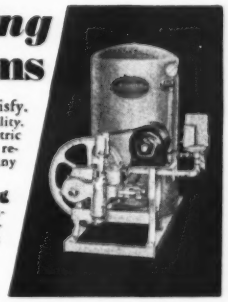
Quick Selling Water Systems

Hoosier Systems both sell and satisfy. Famous for their sturdiness and dependability. Complete line includes wide range of electric or gasoline powered units to meet any requirement. Shallow well or deep well. Many exclusive features at no greater cost.

Write for Catalog

Complete catalog and interesting dealer proposition mailed on request without obligation.

HOOSIER



FLINT & WALLING MFG. CO.
76 OAK STREET, KENDALLVILLE, IND.

REPRESENTATIVES WANTED

An exceptional opportunity is offered manufacturers' agents, live heating contractors and heating sales firms, in REZNOR AUTOMATIC GAS FIRED WARM AIR HEATING APPLIANCES.

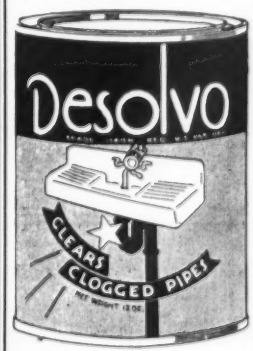
The finest line of modern, fully engineered equipment ever offered the trade—for any requirement from an office to an airplane hangar! Write us today for complete information.

Gas Heating Appliances REZNOR for Forty Years

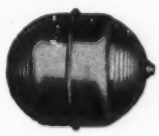
REZNOR MFG. COMPANY » « Mercer, Pa.

Get those Pipes
CLEAN

When you complete a new job run DESOLVO through the drains and GET THOSE PIPES CLEAN. You will find this simple precaution will save you many a dollar in free service calls. Order from your jobber.



The CHAMBERLAIN CO.
Pittsburgh, Pa.



4"x5" Oval Float

NO-SOL COPPER FLOATS

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

Each float is individually tested and guaranteed.

INCORPORATED 1907

The AYLING & REICHERT CO.
3047 N. Erie St. Toledo, Ohio

5" Round Float

IMMEDIATE SALES AND PROFITS

are waiting for heating contractors who sell the Doherty-Brehm Humidifying Radiator. First effective, low-priced humidifier to give Moist Air (correct humidity) to every radiator heated home or building.

• THE DOHERTY-BREHM •

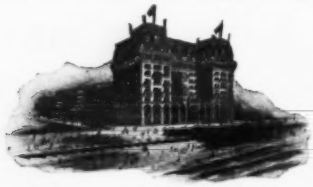
HUMIDIFYING RADIATOR

Sold by CRANE

Through responsible heating contractors. Write for full selling and installation information.

DOHERTY-BREHM CO., 333 N. Michigan Ave., Chicago

Sensible Rates



Garage Attached

The Breakers

— ON THE OCEAN FRONT —

Atlantic City — N. J.

Modern in construction, luxurious in appointments and convenient to all piers and amusements.

Have You Any Used Tools?

No doubt you have. Chances are they are laying somewhere around your shop. Possibly new tools have replaced the old. These old tools will bring you *dollars* if advertised in the For Sale columns of DOMESTIC ENGINEERING. Some plumber in some other locality may be waiting to obtain these tools, in good condition, at reduced prices. The very low rate of 8 cents per word makes the Classified Page a good buy.

Domestic Engineering
1900 Prairie Ave. CHICAGO

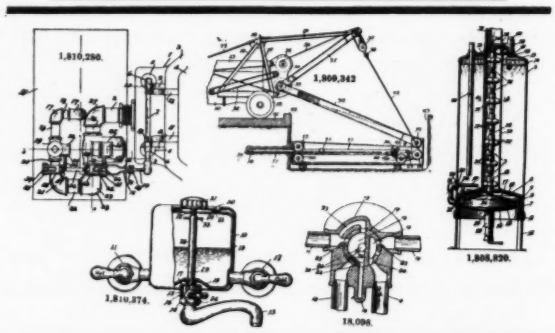
ing Company, Conshohocken, Pa., a Corporation of Pennsylvania.

1,810,774. Water Heater. James H. Mackley, Denver, Colo.

1,810,280. Lavatory Closet. Joseph Lewis, Winnipeg, Manitoba, Canada.

1,809,342. Pipe Pushing Machine. Harry A. Johnson, Chicago, Ill.

1,808,820. Water Heater. Thomas A. Ronstrom, Chicago, Ill.

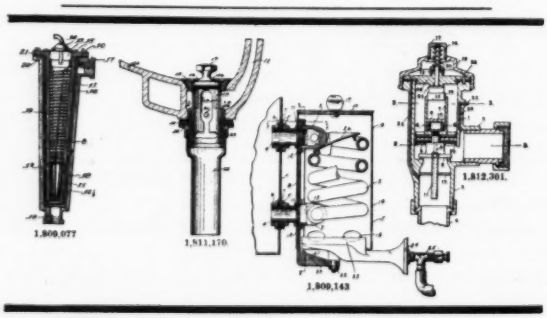


1,810,374. Dishwashing Machine. Raymond B. Shoemaker and Charles L. Lawrence, New York, N. Y.

18,098. Water Softener Valve. Charles P. Eisenhauer, Dayton, Ohio, assignor to The Duro Company, Dayton, Ohio, a Corporation of Ohio.

1,809,077. Electric Water Heater. Leo Shuman, Spokane, Wash., assignor, by mesne assignments, to Continental Manufacturing Company, a Corporation of Washington.

1,811,170. Lavatory Drain. Frank G. Brotz, Kohler, Wis., assignor to Kohler Company, Kohler, Wis., a Corporation of Wisconsin.



1,809,143. Hot Water Heater. Clarence H. Morrow, Cleveland, Ohio, assignor to The Hotstream Heater Company, Cleveland, Ohio, a Corporation of Ohio.

1,812,301. Flush Valve. Charles Sydney Nasmith, Sydney, New South Wales, Australia.

◆

Astoria, N. Y.—With a capital of $20,000 the Astoria Plumbing and Heating Company, Inc., has been chartered to establish and operate a plumbing and heating engineering and contracting business. The new concern is represented by F. R. Klein, 401 Broadway, New York City.

Syracuse, N. Y.—The Walter Coling Company has been organized and incorporated with a capital of $30,000 by Walter A. Coling and associates to establish and operate a plumbing engineering and contracting business. The new firm is represented by Jones and Kelsen.

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 258, "Domestic Engineering," 1900 Prairie Ave., Chicago.

WONDERFUL MONEY-MAKING EXclusive or side-line proposition for salesmen calling on plumbing dealers. Write us today. Address Koil-Les Heater Company, Geneva, Illinois.

Situations Wanted

COLLEGE GRADUATE — THOROUGHLY acquainted with the plumbing industry would like to represent a few reliable manufacturers of staple plumbing articles, in the Pittsburgh District and Western Pennsylvania. References exchanged. Write to Reuben Korn, 1005 Mirror St., Pittsburgh, Pa.

Lines to Handle

MANUFACTURERS' REPRESENTAtive calling on wholesale Plumbing and Heating Supply Jobbers to sell an A-1 Patented product. Unlimited field. Commission basis. Attractive territories open. Real future. Full references required. Replies strictly confidential. Address Key 651, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

MANUFACTURER OF COMPLETE line of nipples wants representative —preferably manufacturer's agent— with following amongst jobbers. Commission basis. Pittsburgh-Cleveland district; also Southeastern district open. Give experience and present connections. Address Key 653, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

REPRESENTATIVES WANTED THAT are at present calling on plumbing and heating contractors in metropolitan area of Chicago to sell specialties and heaters as a side line, for large manufacturer. Address Key 650, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

WANTED—MANUFACTURERS' agent to sell jobber only established line of Concealed Bath and Shower fixtures, Patented Features, Attractive appearance and right price. Address Key 647, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

WANTED—MANUFACTURERS' agent selling plumbing contractors in Pennsylvania outside of Philadelphia; also New York State outside of New York City. In writing give outline of your territory and line now carried. Address Key 620, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

WE DESIRE REPRESENTATION IN the Southeastern and Southwestern States, selling to the wholesalers only, complete line of Brass Pipe Fittings and other kindred items such as Ferrules, Soldering Nipples, etc. Address Phoenix Brass Fittings Corp., Irvington, New Jersey.

WANTED—REPRESENTATIVES FOR a line of plumbers' brass goods in the following territories: Iowa, Nebraska, Colorado and Dakotas, to work on a commission basis. Give references in your first letter. Address Key 631, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Lines Wanted

CANADIAN MANUFACTURERS' agent is desirous of securing exclusive representation in Canada for line of Heating products manufactured in United States. Address Key 649, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

For Sale

FOR SALE: PLUMBING AND TIN shop and hardware store. Invoice price, approximately four thousand dollars and seven thousand dollars, respectively. Rent reasonable! Opportunity splendid! Chance of a lifetime! Address Joseph Netzer, P. O. Box 975, Laredo, Texas.

WILL SELL LONG-ESTABLISHED shop in city of 10,000 close to Denver. Finest reputation and record of earnings, $3,500, or will trade for equal investment on Pacific Coast. Address Key 654, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

FOR SALE—PLUMBING AND HEATing business with building in Northern New Jersey. Good location and always have plenty of work. Address Key 652, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

FOR SALE—PLUMBING SHOP AND Equipment, located in a town in Eastern Nebraska, population thirty-seven hundred. Price reasonable, terms if desired. Address Key 648, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Use this page to get what you want

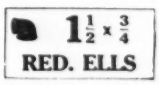
If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

Miscellaneous

GOOD LOCATION FOR PLUMBER. Apply to Doctor A. H. Marshall, Charleston, Missouri.

PLUMBERS' BIN LABELS



Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Hadden Bin Label Co., Hadden Heights, N. J.

Books for Your Trade Library

TABLE OF ESTIMATED RADIATION. By Harry B. Perrigo. Gives you the radiation required for heating rooms of any size. There are two tables, one for steam, the other for hot water. All you need is the amount of glass surface, exposed wall, and cubical contents and you can instantly find the radiation required. It comes in a convenient pocket size—4½x7. The tables are printed in two colors on heavy celluloid making 4 pages, substantially bound. Price postpaid $1.00.

OVERHEAD EXPENSE AND PERCENTAGE METHODS. By Henry F. Baillet. A practical book on the cost of doing business, explaining how to find it and what to do with it when found in order to make sure that each business transaction yields a profit. It is written in plumber's English and is very easy to understand. Contents: Overhead Expense, Percentage Methods, Questions and Answers on Overhead Expense and Related Subjects, Proportioning Overhead Expense, Comparative Statements of ten different firms, Comparison of Statements of one firm for several years, Value of Annual Synopsis of Business. 128 pages 4¼x7, bound in cloth. Price postpaid $1.50.

DEAN'S SYSTEM OF GREENHOUSE HEATING. By Mark Dean. Explains in detail Mr. Dean's system of heating greenhouses with steam or hot water. Glass surface, sizes of flow and return pipes, radiating surface of pipes, etc., are all taken into consideration. This book will be a great help to anyone who plans or installs greenhouse heating systems. Many tables are given. 46 pages, 5¼x7¾, cloth cover. Price postpaid $2.00.

500 PLAIN ANSWERS TO DIRECT QUESTIONS ON STEAM, HOT WATER, VAPOR AND VACUUM HEATING. By Alfred G. King. Covers the science and general practice of heating including modern systems of modified heating explained in a series of plain questions and answers with tables, rules and general information. It makes a splendid text-book for the apprentice and an ideal reference book for master fitters. Has 253 pages, 6x9, bound in cloth. Price postpaid $2.50.

PLUMBING QUESTIONS AND ANSWERS. By Joseph E. Taggart. Presents in question and answer form the fundamentals upon which the entire plumbing installation of New York City rests. Other sections cover tests for anti-siphon traps, installation of water supply and the standpipe-fireline rules. There's also an appendix of useful tables and measures. Has 164 pages, 5x7, bound in fabrikoid. Price postpaid $2.00.

Domestic Engineering
Books Sent Parcel Post Prepaid
1900 Prairie Avenue, Chicago

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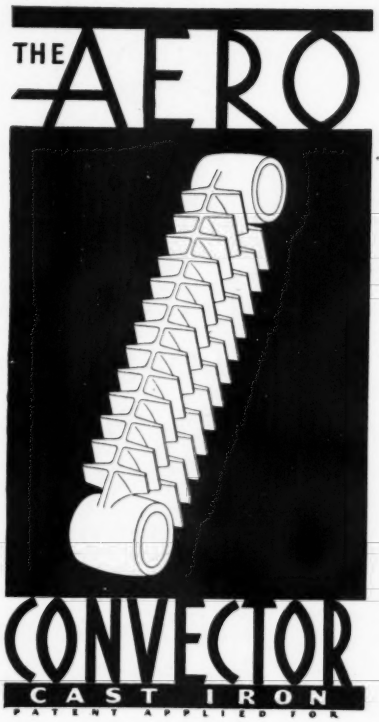
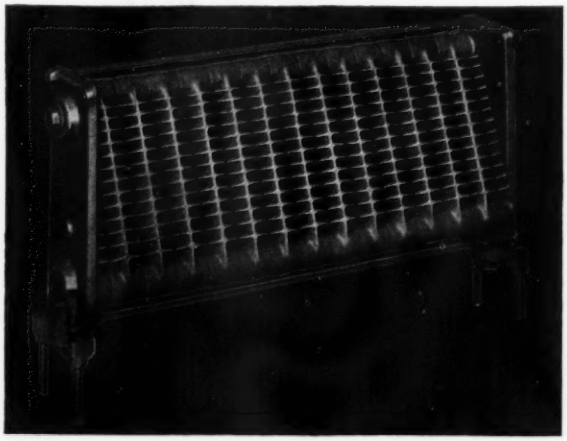


Flexible and ADAPTABLE

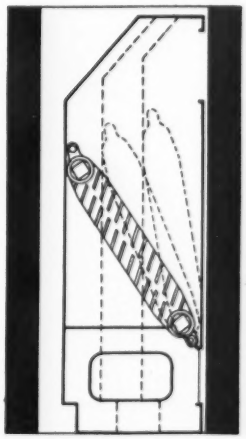
AS TO LENGTH



15 Section Aero Convector—5½" Depth. Each end section has 2—1¼" horizontal tappings and 1—1¼" bottom vertical tapping.

The Aero Convector is made up of standard sections in multiples of two inches, permitting assembly in the widest range of lengths to fit any width of recess.

AS TO DEPTH



Single units with legs are furnished for 3½", 4", and 5½" depth of enclosure. Double units are furnished for 7½" and 10½" depths.

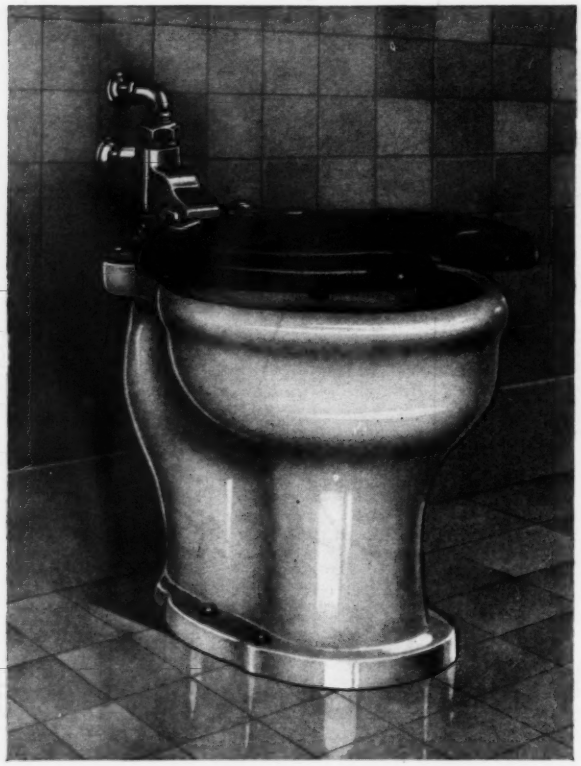
The Aero Convector, with its standard sections, provides the same latitude in lengths possessed by Aero direct radiation. With its top and bottom malleable push nipple connections, it offers the same positive interior water circulation and ready air elimination, thus permitting the unit to be used on hot water and one-pipe steam systems, as well as two-pipe and vapor systems. The Aero Convector is, in short, a unit that completely meets the new demand for concealed heating, without requiring an entirely new technique in installation and application, *and being made of cast iron lasts a lifetime.*

Complete information gladly furnished . . . won't you write?

NATIONAL RADIATOR CORPORATION

NATIONAL BONDED CAST IRON BOILERS . . NATIONAL BONDED GAS BOILERS . . . NATIONAL PREMIER STEEL BOILERS . . . AERO CAST IRON RADIATORS . . . AERO CAST IRON CONVECTORS

JOHNSTOWN, PA.



Vogel Number Ten-A Seat-Action Closet with syphon jet bowl. Tank is in the wall. Flushes on air and water pressure

THIS IS THE CLOSET THAT SCHOOL BOARDS ARE NOW PREFERRING

Children are careless, but VOGEL Number Ten and Ten-A Closets are designed with this in view.

CHILDREN are always in a hurry—naturally they forget to flush closets—**VOGEL** Number Ten and Ten-A Closets are seat-action—they flush every time—children cannot forget.

There is nothing to get out of order in **VOGEL** Number Ten and Ten-A Closets—no balls or floats to leak—no delicate mechanism requiring frequent adjustment—and no parts to be affected by local water conditions.

And the **VOGEL** Closet on an Endurance Test since July 6, 1929, has now flushed 331,000 times—the equivalent of 118 years' use.

Literature designed especially to give architects and school boards up-to-the-minute information on Vogel school closets will be sent promptly to any plumber or jobber requesting it.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. **St. Louis, Mo.**

See inside front page for VOGEL Frost-Proof advertisement

• • VOGEL PATENTED *Products* • •